# Model S-C3 F/SPF MODELS Machine Code: B284/B288 SERVICE MANUAL

Sep. 29th, 2006 Subject to change

## **Safety Notice**

### Important Safety Notices

#### **Prevention of Physical Injury**

- Be sure that the power cord is unplugged before disassembling or assembling parts of the copier or peripherals.
- 2. The wall outlet should be near the copier and easily accessible.
- 3. Note that electrical voltage is supplied to some components of the copier and the paper tray unit even while the main power switch is off.
- 4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
- 5. If you start a job before the copier completes the warm-up or initializing period, keep hands away from the mechanical and electrical components until job execution has started. The copier will start making copies as soon as warm-up or initialization is finished.
- The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

#### **Health Safety Conditions**

Toner and developer are nontoxic, but getting either of these into your eyes may cause temporary eye discomfort. Try to remove with eye drops or flush with water. If material remains in eye or if discomfort continues, get medical attention.

#### **Observance of Electrical Safety Standards**

The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those relevant models.

### **WARNING**

• S Keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur if this precaution is not observed.

#### Lithium Batteries

Incorrect replacement of lithium battery(s) on the FCU may pose risk of explosion. Replace only with the same type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

### Safe and Ecological Disposal

- 1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly if exposed to an open flame.
- 2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are nontoxic supplies.)
- 3. Dispose of replaced parts in accordance with local regulations.

### Laser Safety

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

### \Lambda WARNING

• Use of controls not specified in this manual, or performance of adjustments or procedures not specified in this manual, may result in hazardous radiation exposure.

### A WARNING FOR LASER UNIT

### **WARNING**

• Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

### CAUTION MARKING:



# Symbols and Abbreviations

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations is as follows:

	See or Refer to
$\langle T \rangle$	Clip ring
C	E-ring
Î	Screw
Ę	Connector
ŝ	Clamp
SEF	Short Edge Feed
LEF	Long Edge Feed
CT	Core Technology manual





### Short Edge Feed (SEF)



### Cautions, Notes, etc.

The following headings provide special information:

### 

• FAILURE TO OBEY WARNING INFORMATION COULD RESULT IN SERIOUS INJURY OR DEATH.

### 

• Obey these guidelines to ensure safe operation and prevent minor injuries.

Note

• This information provides tips and advice about how to best service the machine.

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# 1. Installation

# Installation Cautions

## 

- Before installing an optional unit, do the following:
  - Print out all messages stored in the memory, all user-programmed items, and a system parameter list.
  - If there is a printer option on the machine, print out all data in the printer buffer.
  - Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.

## Installation Requirements

### Environment

-Temperature and Humidity Chart-



- Temperature Range: 10°C to 32°C (50°F to 89.6°F)
- Humidity Range: 15% to 80% RH
- Ambient Illumination: Less than 1,500 lux (Do not expose to direct sunlight.)
- Ventilation: Room air should turn over at least 3 times/hr/person
- Ambient Dust: Less than 0.1 mg/m<sup>3</sup>
- Do not install the machine where it will be exposed to direct sunlight or to direct airflow (from a fan, air conditioner, air cleaner, etc.).
- Do not install the machine where it will be exposed to corrosive gas.
- Place the machine on a firm and level base.
- Do not install the machine where it may be subjected to strong vibration.

### **Machine Level**

Front to back:	Within 5 mm (0.2") of level
----------------	-----------------------------

12

Right to left:

Within 5 mm (0.2") of level

### **Minimum Operational Space Requirements**

Place the machine near the power source, providing clearance as shown.



### **Vote**

• The 750-mm front space indicated above is sufficient to allow the paper tray to be pulled out. Additional space is required to allow an operator to stand at the front of the machine. • Actual minimum space requirement for left, rear, and right sides is 10mm (0.4") each, but note that this will not allow room for opening of the bypass tray, right door, platen cover, or ARDF unit.

### **Power Requirements**

### **CAUTION**

- Make sure that the wall outlet is near the machine and easily accessible. After completing installation, make sure the plug fits firmly into the outlet.
- Avoid multiple connections to the same power outlet.
- Be sure to ground the machine.

#### Input voltage:

North America:	110 – 120 V, 60 Hz, 8 A
Europe:	220 – 240 V, 50/60 Hz, 4 A

Image quality guaranteed at rated voltage  $\pm$  10%.

Operation guaranteed at rated voltage  $\pm$  15%.

# Copier

### Accessory Check

### Fax Model (B284)/ Printer/Scanner and Fax Model (B288)

Description	Q′ty
NECR (-17)	1
EU Safety Sheet (-67, -26)	1
Paper Size Decal	1
Model Name Plate - RIC,LAN, GES,INF (-29)	l set
Handset Bracket (-17)	1
Screw for Handset Bracket (-17)	2
Modular Cable (-17)	1
Connecter Cover for TEL (-17)	1
User Function Key Decal (-17, -29	1
Ferrite Core for TEL Line	1
Operating Instructions - Book (-17, -29)	1 set
Operating Instructions – CD ROM (-17, -29)	l set

### Installation Procedure

### 

• Make sure that the copier remains unplugged during installation.



- 1. Remove the all strips of tape.
- 2. Remove the bag [A], SMC and A3 sheet of paper on the exposure glass.



3. Remove the spacing wedge [B].

- b262i106
- 4. Remove the three scanner lock pins. (A tag is hanging from each pin.) To remove: Grasp the base of the pin [C], turn the pin 90 degrees, and pull it down and out.
- 5. Remove the tags from the pins.
- 6. Break each pin off the base [C].
- 7. Discard the pin part [D].
- 8. Set each base [C] back into its original hole, turning it 90° to lock it into place. (Be sure to do this for all three pins.)

- 9. Open the front door [E].
- 10. Lift lever [F], press in on latch [G] and pull the bottle holder [H] out. (You do not need to pull it completely out of the machine.)
- 11. Take a new bottle of toner, and shake it several times.







12. Remove the outer cap [I].

### Note

- Do not remove the inner cap [J].
- 13. Load the bottle on the holder.

#### Note

- Do not forcefully turn the toner bottle on the holder. After you turn on the main power switch, the copier sets the bottle in place.
- 14. Push the bottle holder back into the machine.
- 15. Press the latch [K] down to lock the holder.



- 16. Remove the padding [L].
- 17. Pull each tabbed strip [M] out of the PCU with one hand, supporting the PCU with the other.
  - Note
    - Do not pull both strips at the same time, as this could damage the PCU.
- 18. Close the front door.



- 19. Pull out the paper tray, and remove the tape securing the end fence in the compartment.
- 20. Push the bottom plate down, and then load the paper.
- 21. Adjust the side fences. If you load paper shorter than A4, set the end fence in the correct position.
- 22. Push the tray back into the copier.



- 23. Attach the appropriate Brand Decal to the center [N] of the front door if necessary.
- 24. Attach the appropriate tray number decal and paper-size decal to the paper tray [O].

25. Install optional units (if any).



- 26. Attach the ferrite core [P] to the network cable when connecting the cable.
- 27. Attach the ferrite core to the telephone line as same manner step 26.
- 28. Connect the telephone line to the "LINE" jack.

#### Vote

- The end of the ferrite core must be about 10 cm (4") from the end [Q] of the cable.
- 29. Plug in the machine and turn on the main power switch.
- 30. Select the language used in the operation panel as necessary ( 2 Language).

### Interface settings

#### For B284

- 1. Start the SP mode.
- 2. Select SP5-985-001 (NIC setting) and change the setting value to "0" (OFF).
- 3. Select SP5-985-002 (USB setting) and change the setting value to "O" (OFF).
- 4. Turn the main switch off and on.

#### For B288

- 1. Start the SP mode.
- 2. Select SP5-985-001 (NIC setting) and change the setting value to "1" (ON).
- 3. Select SP5-985-002 (USB setting) and change the setting value to "1" (ON).
- 4. Turn the main switch off and on.

### **Copier settings**

- 1. Start the SP mode.
- 2. Select SP5-801-001 and execute the initialization.
- 3. Exit the SP mode, and then start the UP mode.
- Select the "@Remote Service" ("User Tool" > "System Settings > Administrator Tools" > "Extended Security" > @Remote Service") and select "Prohibit".
- 5. Exit the UP mode, and then start the SP mode.
- 6. Select SP5-870-003 and execute initialization for @Remote.
- 7. Select SP5-907-001 and specify the "Plug & Play".
- 8. Select SP5-870-001 and execute writing certification for @Remote S.
- 9. Select SP5-302-002 and specify the time zone.
- 10. Select SP5-307-001, 003, and 004 and specify the daylight-saving-time settings.
- 11. Exit the SP mode and turn the main switch off and on.
- 12. Start the UP mode.
- Specify the date and time with "Set Date" or "Set Time" (User Tool" > "System Settings" > "Set Date" or "Set Time").
- 14. Turn the main switch off and on.
- 15. Check the operations.
- Make a full size copy, and check if the side-to-side and leading edge registrations are correct. If they
  are not, adjust the registrations.

#### **Fax Settings**

#### Initializing the Fax unit

When you press the Fax key for the first time after installation, the error "SRAM problem occurred / SRAM was formatted" will show on the LCD for initializing the program of the fax unit. Turn the main power switch off/on to clear the error display.

#### **Vote**

- If another error occurs after initialization, this can be a functional problem.
- 1. Select fax SP1-101-016 and specify the country code.
- 2. Select fax SP3-101-001 and specify the service station.

### **Optional Hand Set**

### Accessory Check

Check that you have the components and accessories.

No.	Description	Q'ty
1	Handset	1
2	Handset cradle	1
3	Screws	2
4	Handset manual	1

### **Vote**

• The handset bracket is not included in the optional handset kit. The bracket is provided as an accessory of the copier.



### Installation Procedure



1. Attach the handset bracket [A] ( $\hat{\mathscr{F}} \times 2$ ).

### Note

- The bracket is an accessory of the copier.
- 2. Remove the label [B] from the handset cradle [C].
- 3. Attach the cradle to the bracket ( $\hat{\not{e}} \times 2$ ).
- 4. Reattach the label.



5. Set the handset [D] on the cradle.

1. Installation

6. Connect the cable [E] to the TEL jack at the left side of the copier.

## **Paper Tray Unit**

### **Accessory Check**

Confirm that you have these accessories.

Description	Q′ty
1. Paper-size decals	1 sheet
2. Installation Procedure (for service person)	1
3. Installation Procedure (for user)	1

### Installation Procedure

### 

• Unplug the main machine's power cord before starting the following procedure.



- 1. Remove the tape at [A], and the tape and cardboard at [B].
- 2. Pull the paper tray part way out of the unit, remove the tape and cardboard at [C], and push the tray back in.



- 3. Set the machine on the paper tray unit.
- 4. Remove the paper tray from the paper tray unit.
- 5. Load paper into the paper tray. Adjust the side and end fences as necessary. If loading 8<sup>1</sup>/<sub>2</sub>"x 14" paper, remove the end fence and set it into the special compartment.
- 6. Set the paper tray back into the paper tray unit.



7. Stick on the appropriate tray-number decal and paper-size decal, at the locations indicated in the illustration.

# Paper Tray Unit Heater

### Accessory Check

Confirm that you have the accessories listed below.

Description	Q′ty
1. Grounding wire	1
2. Relay harness	1
3. Clamps	2
4. Ferrite core	1
5. Heater fastening screws	2
6. PTU fastening screws	3
7. Grounding screw	1
8. Decal for copier	1
9. Decal for paper unit	1
10. Tie wrap	1



### Installation Procedure

### **CAUTION**

- Unplug the main machine's power cord before starting the following procedure.
- 1. Remove the paper tray unit from the copier if it is already installed.
- 2. Remove the paper trays from the copier and from the paper tray unit.



- 3. Remove the ground screw [1] at the rear of the paper tray unit.
- 4. Fasten the heater [2] and the supplied ground wire [3] to the paper tray unit (\$\$\vec{\vec{P}}\$ x 3). Note that [1] is the ground screw you removed in the previous step and [4] and [5] are the two supplied heater fastening screws.

### Note

• Be sure to position the ground wire [3] and heater harness [6] so that they are out of the way of the copier when you set it onto the paper tray unit.



- 5. Set the copier onto the paper tray unit.
- 6. Screw the paper tray unit into place using three supplied PTU fastening screws.



- 7. Open the front door and remove the copy tray [7] ( $\hat{\mathscr{E}} \times 1$ ).
- 8. Close the front door.



- 9. Remove the memory card cover [8] (  $\not\!\!\!\!/ 2^{\circ} \times 1).$
- 10. Remove the rear cover [9] ( \$\vec{P} x 5).



- 11. Remove the upper left cover [10].
- 12. Remove the controller box [11] (  $\mathbb{P} \times 1$ ,  $\hat{\mathbb{P}} \times 5$ ).



13. Remove the support bracket [12] ( $\hat{\beta}^3 \times 3$ ).



- 14. Pass the heater harness through the hole [15] at the rear of the copier.
- 15. Pass relay harness [16] through the opening [17] (at the rear of the PSU) and through the other opening [15].
- 16. Connect the relay harness to the heater's harness [18].



- 17. Pull the relay harness back into the copier.
- 18. Attach the ferrite core [19] over the relay harness.

- 19. Push the ferrite core back so that it is over the heater's harness.
- 20. Wrap the heater's harness once around the ferrite core [20].
- 21. Locate the ferrite core at the rear [24] of the copier behind the rear clamps.
- 22. Secure the ferrite core with the supplied tie wrap [21].
- 23. Clip off the excess length of the tie wrap.
- 24. Connect the relay harness connector [22] to the large connector at the front center of the PSU.
- 25. Screw the ground wire [23] to the PSU bracket with the included grounding screw.
- 26. Attach the clamps [24] to the PSU bracket.
- 27. Attach the heater harness though the clamps.
- 28. Position the harness so that the front clamp is between the two bindings [25] on the harness.
- 29. Fasten the clamps.



30. Pull the excess length of the heater's harness out the opening at the rear.

#### • Note

- Be sure that the harness passes on the side of the grounding plate at the bottom of the opening. (The front of the grounding plate must remain clear.)
- 31. Arrange the excess harness length so that it sits beneath the FCU cover plate.
- 32. Attach the caution decals to the locations shown in the illustration.



- 33. Reassemble the copier.
- 34. Plug in the power cord, and check the operation.

# **Controller Options**

### Overview

This machine has I/F card slots and SD card slots for optional I/F connections and applications.



### b892i503

### I/F Card Slot

 Slot [A] is used for one of the optional I/F connections: (IEEE1284, IEEE802.11 (Wireless LAN) or Bluetooth).

### SD Card Slot

- Slot [1] is used for the printer/scanner application only.
- Slot [2] is used for PostScript3.
- Slot [3] is used for the service use.
### PostScript3 Installation

# 

• Unplug the machine power cord before starting the following procedure.

#### Installation Procedure



- 1. Install the PostScript3 SD card into the slot 2 [A].
- 2. Turn on the main power switch.
- 3. Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.
- 4. Attach the "Adobe PostScript3" decal to the front cover of the machine.



# Wireless LAN (IEEE 802.11b) Installation

# 

• Unplug the machine power cord before starting the following procedure.

1

Component	Check
-----------	-------

No.	Description	Q′ty
1	Wireless Adapter	1
2	Wireless LAN Card	1
3	LAN Card Cover	4
4	Caution Sheet	1
5	Label	1

### **Installation Procedure**



b892i505

- 1. Remove the interface cover [A] ( $\hat{\mathscr{F}}$  x 2).
- 2. Install the Wireless adaptor into the slot A [B] ( $\hat{\beta}^2 \times 2$ ).
- 3. Install the Wireless LAN card in the wireless adaptor.
- 4. Attach the antenna cap to the wireless LAN card.
- 5. Turn on the main power switch.

6. Print out the configuration page (User Tools/Counter > Printer Features > List/Test Print), and then check that this device is detected.

If reception is poor, you may need to move the machine:

- Make sure that the machine is not located near an appliance or any type of equipment that could generate a strong magnetic field.
- Position the machine as close as possible to the access point.

#### SP Mode Settings for IEEE 802.11b Wireless LAN

The following SP commands can be set for IEEE 802.11b

SP No.	Name	Function
5840 004	SSID	Used to confirm the current SSID setting.
5840 006	Channel MAX	Sets the maximum range of the channel settings for the country.
5840 007	Channel MIN	Sets the minimum range of the channel settings allowed for your country.
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).
5840 018	SSID Check	Used to check the SSID.
5840 020	WEP Mode	Used to display the maximum length of the string that can be used for the WEP Key entry.

## IEEE 1284 Installation

# 

• Unplug the machine power cord before starting the following procedure.

#### **Component Check**

No.	Description	Q′ty
1	IEEE1284 Interface Ass'y	1
2	UL Sheet	1
3	Caution Sheet	1

1

#### **Installation Procedure**



- 1. Remove the interface cover [A] ( $\hat{\not}$  x 2).
- 2. Install the IEEE 1284 board into interface slot A [B] ( $\hat{\beta}$  x 2).
- 3. Turn on the main power switch.
- Print out the configuration page (User Tools/Counter > Printer Features > List/Test Print), and then check that this device is detected.

# **Bluetooth Installation**

# 

• Unplug the machine power cord before starting the following procedure.

#### **Component Check**

No.	Description	Q′ty
1	Wireless Adapter	1
2	Bluetooth Card	1

3	Bluetooth Card Adapter	1
4	Bluetooth Card Cover	1
5	UL/FCC Sheet	1
6	Caution Sheet	1

#### Installation Procedure



- 1. Remove the interface cover [A] ( $\hat{\not{P}} \times 2$ ).
- 2. Install the Wireless adaptor into interface slot A [B] ( $\hat{\beta}^2 \times 2$ ).
- 3. Install the Bluetooth card in the wireless adaptor.
- 4. Attach the antenna cap to the Bluetooth card.
- 5. Turn on the main power switch.
- 6. Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.

# **PM Tables**

Reset the PM counter (SP7-804-001) after doing maintenance work.

Key: AN: As necessary, C: Clean, R: Replace, I: Inspect

	Every 45k	Every 90k	AN	NOTE	
OPTICS					
Reflector	С		С	Optics cloth	
l st mirror	С		С	Optics cloth	
2nd mirror	С		С	Optics cloth	
3rd mirror	С		С	Optics cloth	
Platen cover	С		С	Dry cloth	
Exposure glass	С		С	Dry cloth	
Toner shield glass	С		С	Dry cloth	
DRUM AREA					
PCU	R			Clean toner-bottle holder.	
Transfer roller		R			
Discharge plate		R			
PAPER FEED					
Paper feed roller		R	С	Water or alcohol.	
Friction pad		R	С	Dry cloth	
Bottom-plate pad	С		С	Water or alcohol.	
Registration roller	С		С	Water or alcohol.	
FUSING UNIT	FUSING UNIT				
Hot roller		R			
Pressure roller		R			

	Every 45k	Every 90k	AN	NOTE
Hot roller bearings		R		
Pressure-roller bushings		I		
Inlet guide		С		
Outlet guide		С		
Hot roller stripper pawls		R		
Thermistor		С		

	Every 90k	AN	NOTE			
ARDF						
Separation roller	R	С	Water or alcohol			
Pick-up roller	R	С	Water or alcohol			
Feed roller	R	С	Water or alcohol			
White plate		С	Water or alcohol			
DF exposure glass		С	Water			
Rollers RO, R1, R2		С	Water or alcohol			
Registration sensor reflector		С	Water or alcohol			

	Every 120k	AN	NOTE
PAPER TRAY UNIT			
Paper feed roller	R		
Bottom-plate pad		С	Dry cloth
Friction pad	R		

# How to Clear the PM Counter

Reset the PM counter after your maintenance work.



- 1. Activate the SP mode.
- 2. Select SP7-804-001.
- 3. Press the EXECUTE key [A]. The message "Completed" is displayed when the program ends normally. An error message is displayed if the program ends abnormally.
- 4. Press the  $\mathfrak{O}$  (Escape) key [B] to end the program.

2. Preventive Maintenance

# Precautions

#### General

# 

• Turn off the main power switch and unplug the machine before starting replacement.

Before turning off the main power switch, check that no mechanical component is operating. Mechanical components may stop out of their home positions if you turn off the main power switch while they are operating. The component may be damaged if you try to remove it when it is not in the home position.

### Lithium Batteries

# 

 Incorrect replacement of lithium battery(s) on the controller or on the fax unit poses risk of explosion. Replace only with the same type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

### Halogen-free Cable

# 

• Use extreme caution while handling cables.

To comply with local regulations, halogen-free cables are used in this machine. Halogen-free cables are environment-friendly, but no stronger than conventional cables. These cables may be damaged in any of the following cases:

- The cable is caught between hard objects such as brackets, screws, PCBs, and exterior covers.
- The cable is rubbed on a hard object such as brackets, screws, PCBs, and exterior covers.
- The cable is scratched with a hard object such as brackets, screws, PCBs, exterior covers, screwdrivers, and fingernails.

# **Special Tools and Lubricants**

Part Number	Description	Q'ty
A1849501	Optics Adjustment Tools (2 pcs/set)	1 set
A2929500	Test Chart – S5S (10 pcs/set)	1 set
VSSM9000	Digital Multimeter – Fluke 87	1
N8036701	Flash Memory Card (4MB)	1
N8031000	Case for Flash Memory Card	1
A2579300	Grease Barrierta – S552R	1
52039502	Silicon Grease 501	1

# **Exterior Covers and Operation Panel**

### **Rear Cover**



- 1. Open the right door [A].
- 2. Rear cover [B] (🖗 x 5)

# Copy Tray

# 

• Make sure that the cables under the copy tray are in place before reassembling the copier. If these cables are caught between the copy tray and the inner cover, they may be severely damaged.



- 1. Open the front door [A].
- 2. Copy tray [B] (🖗 x 1)

#### Reassembling

There are several cables under the front end of the copy tray. To set these cables in place, gently pull these cables to the left-hand side (toward the PSU) and hold them there as you attach the copy tray.

# **Operation Panel and Upper Covers**



<sup>1.</sup> Remove the ARDF.

- 2. Rear cover (🖝 "Rear Cover")
- 3. Slide the upper left cover [A] to the rear.
- 4. Rear scale [B] (🖗 x 3)
- 5. Slide the upper right cover [C] to the rear.
- 6. Front left cover [D] (∅ x 2)
- 7. Operation panel [E] (Ĝx 4, ⊑╝ x 1)
- 8. Front right cover [F]

## **Right Door**



- 1. Open the right door [A].
- 2. Release the strap [B].
- 3. Right door (⊑<sup>⊯</sup> × 1)

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3

# Bypass Tray



1. Press the stopper rails [A] inward.

# Platen Cover Sensor



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- 1. Rear cover (🖝 "Rear Cover")
- 2. Rear scale (
   "Operation Panel and Upper Covers")
- 3. Platen cover sensor [A] (⊑<sup>IJ</sup>× 1, hook)

# **Scanner Unit**

To clean the mirrors and lenses, use a blower brush or wet cotton.

## **Exposure Glass**

To clean the exposure glass, use alcohol or glass cleaner.



- 1. Rear cover ( Rear Cover")
- 2. Rear scale, upper right cover (🖝 "Operation Panel and Upper Covers")
- 3. Exposure glass [A]

#### Reassembling

Make sure that the marking on the glass is at the rear left corner, and that the left edge of the glass is aligned flush against the support ridge [B] on the frame.

#### Adjustment

When replacing the white plate, perform the "Scan Auto Adjustment" (
SP4-428-001).

### Lens Block

# 

- Do not disassemble the lens block. The lens block is precision adjusted before shipment.
- Do not touch the screws on the CCD. The CCD is precision adjusted before shipment.



- 1. Exposure glass (🖝 "Exposure Glass")
- 2. Front left cover, operation panel (
   "Operation Panel and Upper Covers")
- 3. Release the cable from the four clamps [A].
- 4. Lens block [B] ( $\hat{\mathscr{F}} \times 4$ , 1 flat cable)

#### Note

- Do not loosen the paint-locked screws holding the lens unit in place.
- After installing a new lens block, carry out copy adjustments (🖝 "Adjusting Copy Image Area").

## Exposure Lamp, Lamp Stabilizer Board

Do not fold the exposure cable on the exposure lamp.



- 1. Exposure glass (🖝 "Exposure Glass")
- 2. Front left cover, operation panel (
   "Operation Panel and Upper Covers")
- 3. Slide the first scanner to a position where the lamp and scanner are clear of the metal lids.
- 4. Disconnect the lamp connector [A].
- 5. Remove either or both of the following:
  - Exposure lamp [B] (𝔅 x 1)
  - Lamp stabilizer board [C] (🖗 x 2, 1 flat cable)

#### **Scanner Motor**

- 1. Rear cover (🖝 "Rear Cover")
- 2. Rear scale, upper right cover (🖝 "Operation Panel and Upper Covers")



3. Remove the right platen stay holder [A] ( $\hat{\beta} \times 3$ ).



4. Scanner motor [B] ( $\mathscr{F} \times 3$ , 1 spring, 3 screw holders,  $\mathbb{E} \times 1$ )

#### Reinstalling

When reinstalling, fasten the screws loosely, set the spring in place, and tighten up the screws.

# Scanner HP Sensor



#### b262r506

- 1. Rear cover (🖝 "Rear Cover")
- 2. Front left cover (
   "Operation Panel and Upper Covers")
- 3. Scale plate (🖝 "Scale Plate")

3

4. Scanner HP sensor [A] (⊑<sup>™</sup> × 1, hook)

Note

• Move the first scanner from the home position if you have difficulty removing the sensor.

### Scanner alignment adjustment

- 1. Rear cover ( rRear Cover")
- Rear scale, upper right cover, front left cover, operation panel (
   "Operation Panel and Upper Covers")
- 3. Exposure glass (🖝 "Exposure Glass").
- 4. Loosen the 2 screws holding the 1st and 2nd scanner belts in place.



- 5. Slide the 1st and 2nd scanners so that all four of the following are roughly aligned on both the front and back sides:
  - The hole on the copier's lid
  - The hole on the 1st scanner
  - The corner right hole on the 2nd scanner
  - The hole at the base of the scanner



- 6. Insert the two optics adjustment tools [A], and adjust the scanners as necessary so that the tools go through all four holes.
- 7. Tighten the two screws that you loosened at step 2 above, so that the belts are firmly clamped into place.
- 8. Remove the adjustment tools.

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# Fusing

### **Fusing Unit**

# 

• Before handling the fusing unit, make sure that the unit is cool enough. The fusing unit can be very hot.



- 1. Copy tray (🖝 "Copy Tray")
- 2. Open the right door.
- 3. Connector cover [A] (∦ x 1)

### Note

- When reinstalling, attach the ground wire.
- 4. Fusing unit [B] (⋛ x 2, 🖼 x 4)

# **Exit Sensor**



- 1. Fusing unit (🖝 "Fusing Unit")
- 2. Exit sensor [A] (⊑ × 1)

# Hot Roller Stripper Pawls

#### Comportant 🗋

• Take care not to damage the hot roller stripper pawls and the tension springs.



- 1. Fusing unit (🖝 "Fusing Unit")
- 2. Separate the fusing unit into two sections: the hot roller section [A] and the pressure roller section [B]  $(\hat{\beta} \times 2)$ .

After removing the screws, lower the pressure roller section about halfway and then slide it toward the front side to detach it.

- 3. Support rollers [C]
- 4. Hot roller stripper pawls [D]

#### Note

Remove the spacer [E] (𝔅 x 1) if you are removing the hot roller assembly (☞ "Hot Roller & Fusing Lamp").

## Hot Roller and Fusing Lamp

# 

• Do not touch the fusing lamp and rollers with your bare hands.

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- 1. Hot roller stripper pawls and spacers (🖝 " Hot Roller Stripper Pawls")
- 2. Hot roller assembly [A] ( $\hat{\mathscr{F}} \times 2$ )
- 3. Fusing lamp [B]

Note

• When reassembling, check that the direction of the fusing lamp is correct.



4. Hot roller [C] (2 C-rings, 1 spacer, 1 gear, 2 bushings, 1 cover [D])

#### Reassembling

Be sure that:

- The fusing lamp is positioned correctly.
- The fusing lamp does not touch the internal part of the hot roller.

## Thermoswitches and Thermistor



- 1. Hot roller assembly (🖝 "Hot Roller & Fusing Lamp")
- 2. Thermoswitches ( $\hat{\beta}$  x 2 for each)
- 3. Thermistor (∦ x 1)

#### Reassembling

Make sure of the following:

- That the thermistor is in contact with the hot roller.
- That the hot roller turns smoothly.

#### Note

• Do not recycle a thermoswitch that is already opened. Safety is not guaranteed if you do this.

## **Pressure Roller**



- 1. Separate the fusing unit into two sections (🖝 "Hot Roller Stripper Pawls").
- 2. Fusing entrance guide [A]



- 3. Two springs [B][C]
- 4. Two pressure arms [D][E]
- 5. Bushing [F]
- 6. Pressure roller [G]

3

### Checking the NIP band

You can check the nip band to see if the fusing unit is in a good condition–especially, if the hot roller and pressure roller are correctly installed.

- 1. Activate the SP mode.
- 2. Select SP1-109-001.
- 3. Specify "1."
- 4. Press the OK key.
- 5. Press the 🕙 key. The copy mode is activated.
- 6. Place an OHP sheet on the by-pass tray.
- 7. Press the (\*) key. The copier feeds the OHP sheet, and stops it between the hot roller and the pressure roller for about 20 seconds.
- 8. Wait until the OHP sheet is output.
- 9. Press the 🔊 key.
- 10. Make sure SP1-109-001 is selected.
- 11. Specify "0".
- 12. Press the OK key.
- 13. Quit the SP mode.

You see an opaque stripe on the OHP sheet. This is the trace of the nip band. The normal nip band is symmetrical on the OHP sheet. Both ends are slightly thicker than the center.

#### Note

• There are no specifications or standards for the nip band of this copier.

# PCU and Quenching Lamp

When handling the photo conductor unit (PCU), use caution:

- Do not touch the OPC drum with your bare hands. When the OPC drum is unclean, clean it with dry cloth, or clean it with wet cotton and wipe it with dry cloth.
- Do not use alcohol any other chemicals to clean the OPC drum. These substances damage the OPCdrum surface.
- Keep PCUs in a cool, dry place.
- Do not expose the OPC to any corrosive gas such as ammonia.
- Do not shake a used PCU. Remaining toner and developer may spill out.
- Dispose of used PCUs in accordance with local regulations.

#### PCU



1. Open the right door.

#### Note

- The PCU may become stuck if you try to remove it while the front door is closed.
- 2. Open the front door.
- 3. Remove the toner bottle holder.

#### Note

- Clean all spilled toner off the toner bottle area and the inside of the front door.
- 4. Pull out the PCU [A] (≝ x 1).

5. When having installed a new PCU, remove the Styrofoam and tags (
"Installation Procedure" in the chapter "Installation").

#### Initialization

After you turn on the main power switch, the copier automatically initializes the new PCU. When the copier is executing initialization, it is important that you:

- Do not turn off the main power switch.
- Do not open or remove exterior covers.

# Quenching Lamp



- 1. PCU ( "PCU")
- 2. Quenching lamp [A] (🗊 x 1)

# Exhaust Fan and Main Motor

# Exhaust Fan



- 1. Rear cover (🖝 "Rear Cover")
- 2. Exhaust fan [A] (⋛ x 2, ⊑<sup>IJ</sup> x 1)

#### Reassembling

Make sure that the arrow [B] on the frame points to the rear side. The arrow indicates the direction of airflow.

## Main Motor



- 1. Rear cover (🖝 "Rear Cover")
- 2. High-voltage power supply board (🖝 "High-Voltage Power Supply Board")
- 3. Ground plate [A] (∦ x 1)
- 4. Main motor with the gear cover [B] (  $\mathbb{E}$  x 1,  $\mathscr{F}$  x 7,  $\mathbb{C}$  x 2, 2 bushings)



- 5. All gears [C]
- 6. Main motor [D] (🖗 x 4)

#### Reassembling

Attach the main motor before attaching the gears.

3

# **Paper Feed**

### Paper Feed Roller and Friction Pad

When handling the paper tray or the paper feed roller, use caution:

- Do not touch the surface of paper feed rollers.
- To avoid paper jams, correctly set the side and end fences in the paper tray.



- 1. Paper tray
- 2. Shaft [A] (🐼 x 1)
- 3. Remove either or both of the following:
  - Paper feed roller [B]
  - Friction pad [C]

# Paper End Sensor



- 1. Paper tray
- 2. Open the right door.
- 3. PCU ( "PCU")
- 4. Paper end sensor [A] (⊑<sup>™</sup> x 1)

### **Registration Sensor**



- 1. Paper tray
- 2. Open the right door.
- 3. Open the paper guide [A].

### **Vote**

• Remove the paper guide (Clip x 1) if you have difficulty removing the registration sensor.

- 4. Registration sensor feeler [B]
- 5. Registration sensor [C] (⊑<sup>™</sup> x 1)

Note

• Disconnect the connector (CN127 [D]) if you have difficulty removing the registration sensor.

# **Bypass Paper End Sensor**



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- 1. Right door (🖝 "Right Door")
- 2. Sensor compartment [A]
- 3. Bypass paper end sensor [B] (⊑<sup>∭</sup> x 1)

3

# Bypass Feed Roller



- 1. Right door (🖝 "Right Door")
- 2. Turn the feed roller housing upside down [A] ( $\hat{\beta}^2 \times 2$ ).



- 3. Feed roller shaft [B] (2 snap pawls [C], 1 spacer [D])
- 4. Bypass feed roller [E]


- 1. Rear cover (🖝 "Rear Cover")
- 2. Right door (🖝 "Right Door")
- 3. Disconnect the bypass feed clutch connector [A] (CN93).
- 4. Bypass feed roller housing [B] ( 🖗 x 2)
- 5. Bypass feed clutch [C] ( $\mathbb{C} \times 1$ )



6. Bypass friction pad [D]

## Paper Feed and Registration Clutches



- 1. Paper tray
- 2. High-voltage power supply board (
   "High-Voltage Power Supply Board")
- 3. Ground plate [A] (∦ x 1)
- 4. Gear cover [B] (☞ x 1, ℱ x 7, ℂ x 2, 2 bushings)

### Note

• Do not remove the main motor from the gear cover.



- 5. Ground plate [C] (∦ x 1)
- 6. Slowly push the clutch holder [D] and remove the registration clutch [E] (x 1, x 1).
- 7. Paper feed clutch [F]

3

# Image Transfer

Transfer Roller

## 

- Do not touch the transfer roller with your bare hands.
- Do not scratch the transfer roller. The transfer roller is easily damaged.



- 1. Right door (🖝 "Right Door")
- 2. Raise the levers [A][B] at the ends of the image transfer roller.
- 3. Release the image transfer roller [C].

#### Reassembling

Make sure that the springs [D] are in the original positions.

## ID Sensor and Duplex Roller



- 1. Right door (**r**"Right Door")
- 2. Lower guide [A]
- 3. Idle roller holders [B][C]
- 4. Idle roller [D]
- 5. Roller guide [E]
- 6. Transfer unit [F]
- 7. One-way gear [G] (© x 1)
- 8. Duplex roller [H] (© x 1, 3 bushings)



9. ID sensor [I] (⊑ x 1)

## Discharge plate



- 1. Right door (🖝 "Right Door")
- 2. Discharge plate [A]

# **BICU and Controller Board**

## 

- Turn off the main power switch and unplug the machine before starting replacement.
- Before turning off the main power switch, check that no mechanical component is operating. Mechanical components may stop out of their home positions if you turn off the main power switch while they are operating. The component may be damaged if you try to remove it when it is not in the home position.

#### BICU

#### Preparation

- Before replacing the NVRAM, be sure to save the NVRAM data.
- Saving from the BICU NVRAM to an SD card (
   "NVRAM Data Upload/Download (SP5-824/825)" in the chapter "Service Tables")



- 1. Rear cover (🖝 "Rear Cover")
- 2. Controller box [A] (🖗 x 5)



- 3. Ground plate [B] (🖗 x 2)
- 4. BICU [C] (all 🗐, 2 flat cables, 🖗 x 6)

#### Note

- When replacing the BICU, remove the NVRAM [D] from the board. Install the NVRAM to the new board.
- 5. After replacing the NVRAM, copy the saved data to the NVRAM.
  - From an SD card to the NVRAM (
     "NVRAM Data Upload/Download (SP5-824/825)" in the chapter "Service Tables")

## **Controller Board**

#### Preparation

- Before replacing the controller board, be sure to print out SMC or save the NVRAM data.
- Saving from the Controller NVRAM to an SD card (
   "NVRAM Data Upload/Download [SP5-824/825]" in the chapter "Service Tables" of the this manual)
- 1. Rear cover (🖝 "Rear Cover")
- 2. FCU ( FCU")



- 3. Remove the printer/scanner SD card [A].
- 4. Remove the two I/F covers [B] (or I/F options if they have been installed) ( $\hat{\mathscr{F}}^{3} \times 2$  each).



- 5. Remove the relay connector [C].
- 6. Remove the DIMM [D] if it has been installed.
- 7. Remove the controller board with the rails [E] ( $\hat{\beta}^2 \ge 5$ ).



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- 8. Release the hooks [F], and then pull out the rails [G].
- 9. Controller board

#### Note

• When replacing the controller board, remove the NVRAMs from the board. Install the NVRAMs to the new board.

#### When replacing the NVRAM on the controller board



- 1. When you replace the NVRAMs [A], make sure that the NVRAMs are correctly installed.
- 2. The mark [B] on the NVRAM should be directed to the right side (seem from the back side of the machine).
- 3. Reassemble the machine.
- Copy the old NVRAM data to the new NVRAM with SP5-825 or input the SMC data in the machine. (For details, refer to the "NVRAM Data Upload/Download [SP5-824/825]" in the chapter "Service Tables" of the this manual)

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# **Other Replacements**

## Duplex Motor



- 1. Rear cover (🖝 "Rear Cover")
- 2. Duplex motor [A] (ﷺ x 1, ⅔ x 2)



- 1. Rear cover (🖝 "Rear Cover")
- 2. High-voltage power supply board [A] (all II),  $\hat{\mathscr{F}} \ge 4$

### Note

Remove the insulating sheet [B] if you are going to remove the contact-release solenoid (
 "Contact-Release Solenoid") or the gear cover (
 "Paper Feed and Registration Clutches").

## **PSU Assembly**



- 1. Open the front door.
- 2. Copy tray (🖝 "Copy Tray")
- 3. PSU assembly [A] (☜ x 4, 🖗 x 8)

## PSU

- 1. Open the front door.
- 2. Copy tray (🖝 "Copy Tray")



3. PSU [B] (ﷺ x 4, ⅔ x 6)

## Contact-Release Solenoid



- 1. Rear cover (🖝 "Rear Cover")
- 2. High-voltage power supply board (🖝 "High-Voltage Power Supply Board")
- 3. Contact-release solenoid [A] (1 spring,  $\hat{\mathscr{F}} \ge 1$ )

## **Toner Supply Clutch**



- 1. Toner bottle holder
- 2. Copy tray ( Tray")
- 3. Rear cover (🖝 "Rear Cover")
- 4. Disconnect the connector on C19 on the BICU.
- 5. Push the clutch coupler [A] to the rear side, and remove the clip ring [B] from the back of the copier.
- 6. Coupler and spring [C]
- 7. Lift the toner supply clutch [D] and remove it.

#### Note

• When removing, note how the wire goes through a clamp, and also note where it passes through the rear of the machine.

## FCU

### **Lithium Batteries**

## 

 Incorrect replacement of lithium battery(s) on the controller or on the fax unit poses risk of explosion. Replace only with the same type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions. 3

#### Procedure



- 1. Open the right door [A].
- 2. Remove the rear cover [B] ( $\hat{\beta}$  x 5).





- 3. Controller box cover [C] ( $\hat{\beta}^2 \times 12$ )
- 4. FCU [D] (곍 x 3, ⊑ 🖉 x 1)
- 5. When you replace the FCU board, remove the MBU board from the old FCU board and install it on the new FCU board.
- 6. Set the correct date and time with the User Tools: User Tools> System Settings> Timer Setting> Set Date/Time

#### Note

- Do not turn off the battery switch (SW1).
- Do SP6-101 in the "Fax SP" to print the system parameters, and check the settings.

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## Laser Unit

## **WARNING**

• Turn off the main power switch and unplug the copier before starting replacement. The laser beam can damage your eyes severely.

## 

- Do not touch the screws on the LD board on the LD unit. Do not try to adjust any part of the LD unit. The LD unit is precision adjusted before shipment.
- Do not touch the polygon mirror, shield glass, or lenses with your bare hands.

## Location of the Caution Decal



## Laser Unit



- 1. PSU assembly (🖝 "PSU")
- 2. Toner bottle holder

3. Laser unit [A] (∦ x 3, 🖽 x 2)

### Reassembling

Make sure that the cable [B] passes under the unit.

## LD Unit and Polygon Mirror Motor



- 1. Laser unit (🖝 "Laser Unit")
- 2. Laser unit cover [A] ( $\hat{\mathscr{F}}$  x 2, 1 grounding plate)
- 3. LD unit [B] (𝔅 x 2)
- 4. Polygon mirror motor [C] ( 🖗 x 4)

#### Reassembling

Check that the polygon mirror and toroidal lens are clean. Dust or other foreign substances may interfere with the operation of the LD unit.

3

# ARDF

## ARDF

1. Rear cover (🖝 "Rear Cover")



- 2. Remove the DF interface cables [A] (  $\hbox{\rm Im} x$  2, hook x 2).
- 3. Remove the ground cable [B] ( $\hat{\mathscr{E}} \times 1$ ).
- 4. Remove the stud screw [C].
- 5. Remove the ARDF [D].

## **DF Rear Cover**



- 1. Open the ARDF [A].
- 2. Release the three hooks



- 3. Open the DF left cover [B].
- 4. Open the original tray [C].
- 5. DF rear cover [D] ( 🖗 x 1, hook x 4)

## Original Feed Unit

1. Open the DF left cover.



2. Original feed unit [A] (🖏 x 1)

## **Separation Roller**

- 1. Open the DF left cover.
- 2. Original feed unit (🖝 "Original Feed Unit")



- 3. Separation roller cover [A] (hook x 2)
- 4. Separation roller stopper [B] (hook)
- 5. Separation roller [C]

## **DF Drive Board**

1. DF rear cover (🖝 "DF Rear Cover")

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2. DF drive board [A] ( ${\not\!\!\!P} x$  2,  ${\ {\rm I} \!\!\!\!\!\!\!\!\!\!}^{{\rm J} {\rm J}} x$  4, ground cable x 1)

## Original Set and DF Inverter Sensor

- 1. Open the DF left cover.
- 2. Original feed unit (🖝 "Original Feed Unit")
- 3. DF feed clutch ( TPF Feed Clutch")



- 4. Original feed-in guide plate [A] ( $\hat{\not}$  x 2).
- 5. Original set sensor [B] (⊑<sup>™</sup> x 1, hook)
- 6. DF inverter sensor [C] (⊑<sup>™</sup> x 1, hook)

3

## **DF Registration and DF Exit Sensor**

- 1. Open the DF left cover.
- 2. Original feed unit (🖝 "Original Feed Unit")
- 3. DF feed clutch ( TPF Feed Clutch")
- 4. Original feed-in guide plate (🖝 "Original Set and Inverter Sensor")
- 5. DF feed motor (🖝 "DF Feed Motor")
- 6. DF transport motor (🖝 "DF Transport Motor")



- 7. DF transport roller [A] (© x 2, gear x 2, bushing x 2)
- 8. DF separation roller unit [B] ( $\mathbb{C} \times 2$ , gear x 1, bushing x 2)
- 9. Inverter upper guide plate [C] (ℰ x 4, 🗊 x 3, 🛱 x 4)



- 10. Inverter lower guide plate [D] (hook x 2)
- 11. DF registration sensor [E] (⊑<sup>™</sup> x 1, hook)
- 12. DF exit sensor [F] (🗊 x 1, hook)

## **DF Registration Sensor Reflector**



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Clean the SD registration sensor reflector [A] as necessary.

## DF Feed Motor

1. DF rear cover (🖝 "DF Rear Cover")



- 2. Inner cover [A] (∦ x 1)
- 3. DF feed motor with bracket [B] (♂ x 2, ⇔ x 4, 🖾 x 3, timing belt)
- 4. DF feed motor [C] (𝔅 x 2)

## **DF Transport Motor**

- 1. DF rear cover (🖝 "DF Rear Cover")
- 2. DF feed motor ( TF Feed Motor")



3. DF transport motor with bracket [A] ( $\hat{\not\!\!P} x 2,$  spring x 1, timing belt)

3

4. DF transport motor [B] (♂ x 2)

## DF Feed Clutch



- 1. Open the DF left cover.
- 2. DF front cover [A] (∦ x 1)
- 3. Bracket [B] (孑 x 1, ، 如 x 1)
- 4. DF feed clutch [C] (⊑<sup>IJ</sup> x 1)

# **Adjusting Copy Image Area**

Adjust the copy image area under any of the following conditions:

- 1. After clearing engine data (SP5-801-002 or SP5-998-001).
- 2. After replacing any of the following components:
  - First scanner or second scanner
  - Lens block
  - Scanner motor
  - Polygon mirror motor
  - Paper tray

### Printing

Make sure that the paper is correctly loaded in each paper tray before starting the adjustment procedures in this section.

#### **Adjusting Registration**

Use the Trimming Area Pattern (SP5-902-001 > 10) for this adjustment.

- 1. Print out the test pattern with the paper fed from the regular paper tray.
- 2. Print out the test pattern with the paper fed from the by-pass tray.
- 3. Print out the test pattern by selecting duplex printing.



Measure the distance between the leading edge of the image area and the leading edge of the paper
[A].



• The diagram shows the paper on the copy tray. Note that the paper is output with the face down.

SP	Specification
SP1-001-001 (All Trays)	$0\pm2$ mm
SP1-001-002 (By-pass)	$0\pm2$ mm
SP1-001-003 (Duplex)	$0\pm4$ mm

- 5. Adjust the leading edge registration (SP1-001).
- 6. Measure the distance between the side edge of the image area and the side edge of the paper [B].

SP	Specification
SP1-002-001 (1st tray)	$0\pm2$ mm
SP1-002-002 (2nd tray)	$0\pm2$ mm
SP1-002-005 (By-pass)	$0\pm4$ mm
SP1-002-006 (Duplex)	$0\pm4$ mm

- 7. Adjust the side-to-side registration (SP1-002).
- 8. Specify "O" (zero) in SP5-902-001 after finishing the adjustment procedure.

#### **Adjusting Blank Margin**

Use the Trimming Area Pattern (SP5-902-001 > 10) for this adjustment.

1. Print out the test pattern.



 Measure the distance between the four edges of the image area and the four edges of the paper [A] [B][C][D].

Note

• The diagram shows the paper on the copy tray. Note that the paper is output with the face down.

3. Adjust the blank margin (SP2-101).

SP	Specification
SP2-101-001 (Leading Edge) [A]	$2\pm1.5$ mm
SP2-101-002 (Trailing Edge) [B]	2 +2.5/-1.5 mm
SP2-101-003 (Left Side) [C]	$2\pm1.5$ mm
SP2-101-004 (Right Side) [D]	2 +2.5/-1.5 mm

Note

- The "Left Side" and "Right Side" comes to your left-hand side and right-hand side respectively when you view the copied image with the leading edge upwards.
- 4. Specify "0" (zero) in SP5-902-001 after finishing the adjustment procedure.

#### **Adjusting Main-Scan Magnification**

Use the Grid Pattern (Single Dot) (SP5-902-001 > 5) for this adjustment.

SP	Specification
SP2-998-001 (Main Mag-print)	100±1%

- 1. Print out the test pattern.
- 2. Measure the sides of squares. Each side should be 2.7-mm long.)
- 3. Adjust the main-scan magnification (SP2-998-001: Main Mag-print).
- 4. Specify "0" (zero) in SP5-902-001 after finishing the adjustment procedure.

### Scanning

Preparation

- Before adjusting scanning, adjust printing (
   "Printing" in this section).
- To adjust scanning, use the A4 test chart.

#### Adjusting Registration

1. Place the test chart on the exposure glass. Make sure that the test chart is aligned with the rear and left scales on the exposure glass.

2. Make a copy.



3. Measure the distance between the leading edge of the image area and the leading edge of the paper [A].

Note

- The diagram shows the paper on the copy tray. Note that the paper is output with the face down.
- 4. Adjust the leading-edge scan registration. (SP4-010-001).

SP	Specification
SP4-010-001 (LE Scan Regist)	$0\pm2$ mm

- 5. Measure the distance between the side edge of the image area and the side edge of the paper [B].
- 6. Adjust the side-to-side registration (SP4-011-001).

SP	Specification
SP4-011-001 (S-to-S Scan Regist)	$0\pm2$ mm

### **Adjusting Magnification**



- 1. Place the test chart on the exposure glass. Make sure the test chart is aligned with the rear and left scales on the exposure glass.
- 2. Make a copy.
- 3. Compare the copy with the original.
- 4. Adjust the main-scan and sub-scan magnifications. The original image [A] is magnified in the mainscan direction [B] or in the sub-scan direction [C] when you specify a larger value.

#### Note

• The diagrams show the paper on the copy tray. Note that the paper is output with the face down.

SP	Specification
SP4-009-001 (Main Scan Mag)	± 1.0%
SP4-008-001 (Sub Scan Mag)	± 1.0%

#### Scan Auto Adjustment

This procedure adjusts the standard white density level. Adjust the standard white density after any of the following maintenance work:

- Replacing the standard white plate
- Replacing the BICU

- Replacing the lens block
- Executing the memory clear (SP5-801-002 [basic model], SP5-998-001 [other models]).
- 1. Place 10 sheets of new A4 paper on the exposure glass.
- 2. Close the platen cover.
- 3. Activate the SP mode.
- 4. Select Copy SP4-428.
- 5. Specify "1" and press the OK key. The copier automatically adjusts the standard white density.

## DF Image Adjustment

#### Note

• Perform the adjustment procedure in this section only when the ARDF is installed on the copier.



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- 1. Make a temporary test chart as shown in the above diagram. Use the A4/8.5 x 11" paper to make it.
- 2. Place the temporary test chart on the ARDF.
- 3. Make a copy.



4. Measure the distance between the side edge of the image area and the side edge of the paper [A].

(The diagram shows the paper on the copy tray. Note that the paper is output with the face down.)

- Adjust the side-to-side registration (S to S/Front Regist: SP6-006-001, S to S/Rear Regist: SP6-006-004). The image area moves to the rear side of the copier when you specify a larger value.
- 6. Measure the distance between the leading of the image area and the leading edge of the paper [B].
- 7. Adjust the leading edge registration (Leading Regist: SP6-006-002). The image area moves to the right side of the copier when you specify a larger value.
- 8. Measure the distance between the trailing edge of the image area and the trailing edge of the paper [C].
- 9. Adjust the erased area on the trailing edge (Trailing Erase: SP6-006-003).
- 10. Compare the copy with the original.
- 11. Adjust the sub-scan magnification (SP6-006-005). The specification is  $\pm 1.0\%$ .

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3. Replacement and Adjustment

# **Service Call Conditions**

#### Summary

There are four levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent possible damage, the machine does not operate until the service representative resets the SC code.	Activate the SP mode, and turn the main power switch off and on.
В	Turning the main power stitch off and on resets the SC code if the error is caused by incorrect sensor detection.	Turn the main power switch off and on.
С	The machine operates as usual excluding the unit related to the service call.	Turn the main power switch off and on.
D The SC history is updated. The machine operate usual.		No SC code is displayed. Only the SC history is updated.

#### **Vote**

- If a problem involves circuit boards, see if you can solve the problem by disconnecting and reconnecting all connectors before deciding to replace a circuit board.
- If a problem involves a motor lock, check the mechanical load before deciding to replace a motor or sensor.
- If working on a fax-equipped machine, switching power off and on may cause loss of data stored in the memory.

## **Engine SC Code Descriptions**

No. Definit	ion	Symptom	Possible Cause
		Exposure Lamp Error	
101	В	The scanner has scanned the white plate, but cannot detect the white level.	<ul><li>Defective exposure lamp</li><li>Defective exposure lamp stabilizer</li></ul>
No. Definition		Symptom	Possible Cause
-------------------	---	--	---
			<ul> <li>Defective exposure lamp connector</li> <li>Unclean scanner mirror</li> <li>Scanner mirror out of position</li> <li>Defective SBU board</li> <li>Defective SBU connector</li> <li>Lens block out of position</li> <li>Incorrect position or width of white plate scanning (     SP4-015)</li> </ul>
		Scanner home position error 1	
120	В	The scanner home position sensor does not detect the scanner leaving the home position.	<ul> <li>Defective scanner home position sensor</li> <li>Defective scanner drive motor</li> <li>Defective scanner home position sensor connector</li> <li>Defective scanner drive motor connector</li> <li>Defective BICU board</li> </ul>
		Scanner home position error 2	
121	В	The scanner home position sensor does not detect the scanner coming back to the home position.	<ul> <li>Defective scanner home position sensor</li> <li>Defective scanner drive motor</li> <li>Defective scanner home position sensor connector</li> <li>Defective scanner drive motor connector</li> <li>Defective BICU board</li> </ul>
		SBU black level correction error	
141	В	<ul> <li>The automatic SBU adjustment has failed to correct the black level three times at the pre-offset adjustment.</li> </ul>	• Defective SBU board

No. Definition		Symptom	Possible Cause
		<ul> <li>The automatic SBU adjustment has failed to correct the black level ten times at the PGA adjustment.</li> </ul>	
		<ul> <li>The automatic SBU adjustment has failed to correct the black level ten times at the offset adjustment.</li> </ul>	
		SBU white/black level correction error	
142	В	The automatic SBU adjustment has failed to correct the white level ten times at the PGA adjustment.	<ul> <li>Defective exposure lamp</li> <li>Unclean white plate</li> <li>Incorrect position or width of white plate scanning (     SP4-015)</li> <li>Defective SBU board</li> </ul>
		Communication Error between BICU and SBU	
144	В	<sup>B</sup> The BICU cannot correctly establish communication with the SBU.	• Loose connection of the flat cable between the BICU and the SBU
			• Defective flat cable between the BICU and the SBU
			Defective BICU
			Defective SBU
		Automatic SBU adjustment error	
145	D	The white levels of the white plate and the white paper are extraordinarily different during the Scan Auto Adjustment ( SP4-428-001).	<ul> <li>Defective exposure lamp</li> <li>Unclean white plate</li> <li>Incorrect position or width of white plate scanning (     SP4-015)</li> <li>Defective BICU board</li> <li>Defective SBU board</li> </ul>
		Image transfer error	
193	В	Scanned images are not transferred to the controller memory within one minute.	<ul><li>Defective BICU board</li><li>Defective controller board</li></ul>
198	В	Memory address error	

No. Definition		Symptom	Possible Cause
		The BICU does not receive the memory address report from the controller within one minute.	<ul> <li>Inconsistency between the BICU firmware and the controller firmware</li> <li>Defective BICU</li> <li>Defective controller</li> </ul>
		Charge roller current leak	
302	В	The polling module detects a current leak of the charge roller.	<ul> <li>Defective charge roller</li> <li>Defective high voltage supply board</li> <li>Loose connection of the PCU</li> </ul>
		Polygonal mirror motor error	
320	В	The polygon mirror motor does not reach the operating speed within 10 seconds. Or, the polygon mirror motor remains out of the operating speed for 0.2 second after reaching the operating speed.	<ul> <li>Defective polygon mirror motor</li> <li>Loose connection between the polygonal mirror motor and the BICU</li> <li>Defective cable between the BICU and the polygon mirror motor</li> <li>Defective BICU</li> </ul>
		No laser writing signal (F-GATE) error	
321	В	The poling module does not detect the laser writing signal (F-GATE) asserting after the laser crosses 5 mm from the start point on the drum surface.	<ul> <li>Defective BICU</li> <li>Loose connection on the fax controller or the printer controller</li> <li>Defective fax controller or printer controller</li> </ul>
		Laser synchronization error	
322	В	The main scan synchronization detector does not detect the laser signal for 0.5 second.	<ul> <li>Toner bottle not installed</li> <li>Loose connection between the LD unit and the BICU</li> <li>Defective cable between the BICU and LD unit</li> <li>LD unit out of position</li> <li>Defective LD unit</li> <li>Defective BICU</li> </ul>

No. Definition		Symptom	Possible Cause	
		TD sensor error		
390	В	The BICU detects the TD sensor outputting extraordinary voltage (less than 0.2 V or more than 4.0 V) 10 times consecutively.	<ul><li>Defective TD sensor</li><li>Loose connection of the PCU</li></ul>	
		Development bias leak		
391	В	The polling module detects a current leak of the development bias.	<ul><li>Loose connection of the PCU</li><li>Defective high voltage supply board</li></ul>	
		Developer initialization error		
392	В	The ID sensor does not detect a correct pattern during developer initialization (• 2-214-001).	<ul> <li>Defective ID sensor</li> <li>Insufficient developer</li> <li>Defective drum operation</li> <li>Defective development roller operation</li> <li>Loose connection of the PCU</li> <li>Insufficient voltage for the charge roller</li> </ul>	
		Transfer roller leak error (positive electrode)		
401	В	The feedback voltage of the transfer roller is insufficient.	<ul> <li>Defective high voltage supply board</li> <li>Loose connection of the PCU</li> <li>Incorrect installation of the transfer unit or the separation unit</li> <li>Defective transfer roller</li> </ul>	
		Transfer roller leak error (negative electrode)		
402	В	The feedback voltage of the transfer roller is insufficient.	<ul> <li>Defective high voltage supply board</li> <li>Loose connection of the PCU</li> <li>Incorrect installation of the transfer unit or the separation unit</li> <li>Defective transfer roller</li> </ul>	
500	В	Main motor error		

No. Definition		Symptom	Possible Cause
		The main motor does not reach its operation speed within 0.7 second. Or, the main motor remains out of its operation speed for 0.7 second after reaching the operation speed.	<ul><li>Overload</li><li>Defective main motor</li></ul>
		Fusing thermistor open error	
541	A	The fusing temperature remains lower than the specified temperature by 20 degrees Celsius.	<ul> <li>Defective thermistor</li> <li>Incorrect installation of the thermistor</li> <li>Defective power supply unit</li> <li>Loose connectors</li> </ul>
		Fusing temperature warm-up error	
542	A	The fusing temperature rises 7 degrees or less in two seconds; and this continues 5 times consecutively. Or, the fusing temperature is not detected within 25 or 35 seconds.	<ul> <li>Defective thermistor</li> <li>Incorrect installation of the thermistor</li> <li>Defective fusing lamp</li> <li>Defective power supply unit</li> </ul>
		Fusing overheat error 1	
543	A	The fusing temperature detected by the thermistor is 230°C or higher for one second.	<ul><li>Defective thermistor</li><li>Defective power supply unit</li></ul>
		Fusing overheat error 2	
544	A	The fusing temperature detected by the monitor circuit is 250°C or higher for one second.	<ul><li>Defective thermistor</li><li>Defective power supply unit</li></ul>
545		Fusing lamp overheat error	
	A	After the fusing temperature reaches the target, the fusing lamp remains on for 12 seconds.	<ul><li>Defective thermistor</li><li>Incorrect installation of the thermistor</li><li>Defective power supply unit</li></ul>
546	А	Unstable fusing temperature	

No. Definition		Symptom	Possible Cause
		While the fusing lamp is on, the fusing temperature varies 50°C or more within one second; and this occurs two consecutive times.	<ul><li>Defective thermistor</li><li>Incorrect installation of the thermistor</li><li>Defective power supply unit</li></ul>
		Zero cross signal malfunction	
547	В	The zero cross signal is not detected within five seconds after the main power switch is turned on. Or, the zero cross signal is not detected within one second after operation begins.	<ul><li>Defective power supply unit</li><li>Defective BICU</li></ul>
		Consecutive fusing jam	
559	A	The paper jam counter for the fusing unit reaches 3 times. The paper jam counter is cleared if the paper is fed correctly. This SC is activated only when SP1159-001 is set to "1" (default "0").	<ul> <li>Paper jam in the fusing unit.</li> </ul>
		Exhaust fan motor error	
590	В	The exhaust fan motor is locked for five seconds.	<ul><li>Loose connection of the exhaust fan motor</li><li>Overload</li></ul>
		ADF gate error 1	
760	В	The ADF sends the FGATE signal before it is requested to scan originals.	<ul><li>Defective ADF board</li><li>Defective input/output board</li><li>Loose connection</li></ul>
		ADF gate abnormal 2	
761	В	The ADF does not send the FGATE signal within 30 seconds after the ADF starts scanning.	<ul><li>Defective ADF connector</li><li>Defective SBU board</li></ul>
762	В	ADF gate abnormal 3	

No. Definition		Symptom	Possible Cause
		The ADF continues to send the FGATE signal for more than 60 seconds after the ADF starts scanning.	<ul><li>Defective ADF connector</li><li>Defective SBU board</li></ul>
		Mechanical total counter error	
901	В	The polling module does not detect the mechanical total counter.	<ul> <li>Defective mechanical total counter</li> <li>Defective BICU</li> <li>Loose connection</li> </ul>
		Engine total counter error	
903	В	The checksum of the total counter is not correct.	Defective NVRAM on the BICU
		Printer application program error	
954	В	The printer application program does not become ready when the printer application program is necessary.	• Defective application program
		Image transfer error	
955	В	The BICU requests the controller to transfer image data; but the controller does not become ready.	• Defective application program
		Status error (laser optics housing unit)	
964	В	The optics-housing unit does not become ready within 17 seconds after a request.	Defective software
		Controller-engine inconsistency	
			One of the following controllers is installed to the basic model:
980	В	The controller is incompatible with the	• The controller of the MFP model
		engine.	<ul> <li>The controller of the copier/facsimile model</li> </ul>
			<ul> <li>The controller of the printer/scanner/ copier model</li> </ul>

No. Definition		Symptom	Possible Cause
			The controller of the optional printer/ scanner is installed to one of the following models:
			• The MFP model
			• The copier/facsimile model
			• The printer/scanner/copier model
		NVRAM error	
			Defective NVRAM
981	В	An error occurs during engine NVRAM check.	<ul> <li>Loose connection between the BICU and the NVRAM</li> </ul>
			Incorrect installation of the NVRAM
			Defective BICU
		Localization error	
982	В	The localization information in the nonvolatile ROM and in the NVRAM is different (🖝 SP5-807-001).	<ul> <li>Localization setting not specified (The main power switch is turned on for the first time after the NVRAM is replaced.)</li> <li>Incorrect localization setting</li> </ul>
			Defective NVRAM
		Print image transfer error	
984			Defective controller
	В	Print images are not transferred	Defective BICU
		rrint images are not transferred.	<ul> <li>Loose connection between the controller and the BICU</li> </ul>

# GW SC Code Descriptions

### SC6xx

No. Definition		Symptom	Possible Cause/Countermeasure
		CSS communication error	
630	D	The machine tries to communicate with one of the terminals of a relevant service center. $\rightarrow$ An error signal returns.	<ul> <li>Communication error on the public telephone network (logged only; the machine can still operate)</li> </ul>
		MF accounting device error 1	
632	С	The machine sends a data frame. → No normal end signal returns. → This symptom happens three times.	<ul> <li>Defective or broken line between machine and device</li> </ul>
		MF accounting device error 2	
633	С	The machine is communicating with the accounting device. → The break signal returns.	<ul> <li>Defective or broken line between machine and device</li> </ul>
	С	MF accounting device error 3	
634		C A backup RAM error is reported from the accounting device.	• Defective accounting device controller
			<ul> <li>Defective battery in the accounting device</li> </ul>
		MF accounting device error 4	
635	С	C A battery voltage error is reported from the accounting device.	• Defective accounting device controller
			• Defective battery in the accounting device
636	SD C	ard Error	
		Expanded authentication module error	
-001	В	There is no expanded authentication module in the machine.	<ol> <li>Install the correct SD card or the file of the expanded authentication module.</li> </ol>

No. Definition		Symptom	Possible Cause/Countermeasure
		The SD card or the file of the expanded authentication module is broken. There is no DESS module in the machine.	2. Install the DESS module.
		Version error	
-002	В	The version of the expanded authentication module is not correct.	<ol> <li>Install the correct file of the expanded authentication module.</li> </ol>
650	Com	munication error of the remote service mode	em (Cumin-M)
		Authentication error	
-001	С	The authentication for the Cumin-M fails at a dial up connection.	<ol> <li>Check and set the correct user name (SP5816-156) and password (SP5816-157).</li> </ol>
	С	Incorrect modem setting	
-004		Dial up fails due to the incorrect modem setting.	<ol> <li>Check and set the correct AT command (SP5819-160).</li> </ol>
		Communication line error	
-005	С	The supplied voltage is not sufficient due to the defective communication line or defective connection.	<ol> <li>Consult with the user's local telephone company.</li> </ol>
		Incorrect network setting	
-011	С	Both the NIC and Cumin-M are activated at the same time.	1. Disable the NIC with SP5985-1.
		Modem board error	
-012	С	The modem board does not work properly even though the setting of the modem board is installed with a dial up connection.	<ol> <li>Install the modem board.</li> <li>Check and reset the modem board setting with SP5816.</li> <li>Replace the modem board.</li> </ol>
651	Incor	rect dial up connection	·
-001	D	Program parameter error	

No. Definition		Symptom	Possible Cause/Countermeasure	
		The unexpected error occurs when the modem (Cumin-M) tries to call the center with a dial up connection.	• Software bug.	
002	D	Program execution error		
-002	D	Same as SC651-001.	• Software bug.	
		Engine startup error		
670	В	Just after the main power is turned on or the machine is recovering from auto off mode, the engine ready signal assertion fails. Just after the main power is turned on, the engine does not respond.	<ul> <li>Poor connection between the BICU and controller board</li> <li>Defective BICU</li> <li>Defective controller board</li> </ul>	
		Controller-to-operation panel communica	tion error at startup	
672	В	After powering on the machine, communication between the controller and operation panel does not begin, or the communication is interrupted after a normal startup.	<ul> <li>Controller stalled</li> <li>Controller board installed incorrectly</li> <li>Defective controller board</li> <li>Operation panel connector loose or defective</li> <li>Poor connection of DIMM and optional boards on the controller board</li> <li>Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (ON)".</li> </ul>	

# SC8xx

No. Definition		Symptom	Possible Cause/Countermeasure
819 Kern		el stop	
[0696e]	В	Process error	

			Defective RAM DIMM	
			<ul> <li>Defective SD card in slot 1 (lowest slot)</li> </ul>	
			Defective controller	
			Software error	
		System completely down	<ol> <li>Check and/or replace the RAM DIMM.</li> </ol>	
			<ol> <li>Check and/or replace the SD card in slot 1 (lowest slot).</li> </ol>	
			3. Replace the controller.	
			See <b>NOTE</b> at the end of the SC table.	
		VM full error		
		Unexpected system memory size	Defective RAM DIMM	
	В		<ul> <li>Defective SD card in slot 1 (lowest slot)</li> </ul>	
			Defective controller	
[0766d]			Software error	
			<ol> <li>Check and/or replace the RAM DIMM.</li> </ol>	
			<ol> <li>Check and/or replace the SD card in slot 1 (lowest slot).</li> </ol>	
			3. Replace the controller.	
			See <b>NOTE</b> at the end of the SC table.	
	В	Cache error		
[4361]			Defective CPU	
			Cache error in the CPU	1. Replace the controller board.
		The others		
			Defective memory	
[]	В	F	Defective flash memory	
		Error in OS	Defective CPU	
			1. Replace the controller board.	
820	Self-I	Self-Diagnostic Error: CPU		

		1				
		[0001-0015] [000A-000D]: Detailed error code				
	В	During the best monitor program and	Defective CPU device			
		self-diagnostic, any exception or cut-in	<ul> <li>Defective boot monitor program or self-diagnostic program</li> </ul>			
		are not supposed to happen. If these	<ol> <li>Replace the controller board.</li> </ol>			
		nappen, il is defined as 5C.	2. Reinstall the system firmware.			
		[00FF]: Detailed error code				
			Defective CPU			
	В		<ul> <li>Defective local bus</li> </ul>			
		Cache access error in the CPU	1. Turn the main power switch off and on.			
			2. Reinstall the system program.			
			3. Replace the controller board.			
		[0601, 0602, 0605, 0606, 0607, 0609]: Detailed error code				
	В	Exceptional command does not	Defective CPU devices			
		operate even though it is executed on purpose.	1. Replace the controller board.			
		[060A-060E]: Detailed error code				
	В	Cut-in command does not operate when it is executed.	Defective CPU devices			
			Defective ASIC devices			
			1. Replace the controller board.			
		[0610]: Detailed error code				
	В	Timer cut-in does not operate even	Defective CPU devices			
		though it is set.	1. Replace the controller board.			
		[0612]: Detailed error code				
			Defective ASIC			
	В	Cut-in in ASIC occurs.	<ul> <li>Defective devices in which ASIC detects cut-in.</li> </ul>			
			1. Replace the controller board.			
	В	[06FF]: Detailed error code				

		The pipeline clock frequency rate is different from the prescribed value.	<ul> <li>Defective CPU devices</li> <li>Mode bit data error, which is used for initializing CPU.</li> <li>Replace the controller board.</li> </ul>	
		[0702]: Detailed error code		
	В	The result when the program is executed in the command cache is different from desirable value.	<ul> <li>Insufficient CPU cache</li> <li>Insufficient memory process speed</li> <li>Replace the controller board.</li> <li>Replace the RAM DIMM.</li> </ul>	
		[0709, 070A]: Detailed error code		
	В	Even you write the data in the only cache of memory, the data is actually written in another area (not cache) of memory.	<ul> <li>Defective CPU devices</li> <li>Incorrect SPD</li> <li>Boot mode setting error</li> <li>1. Replace the controller board.</li> <li>2. Replace the RAM DIMM.</li> </ul>	
	В	[0801, 0804, 0807, 0808, 0809, 80A]: Detailed error code		
		An error occurs when checking the TLB.	<ul><li>Defective CPU devices</li><li>1. Replace the controller board.</li></ul>	
	В	[4002-4005]: Detailed error code		
		The calculation error in the CPU occurs.	<ul><li>Defective CPU</li><li>1. Replace the CPU.</li></ul>	
821	Self-I	Diagnostic Error: ASIC		
		ASIC error		
[OBOO]	В	The write-&-verify check error has occurred in the ASIC.	<ul><li>Defective controller board</li><li>1. Replace the controller.</li></ul>	
		ASIC not detected		
[OBO6]	В	The ASIC of the I/O is not detected.	<ul> <li>ASIC (controller board defective)</li> <li>Poor connection between North Bridge and PCI I/F.</li> </ul>	

			1. Replace controller board.	
		SHM register check error		
[OB10]	С	Failed to initialize or could not read	Defective bus connection	
[00.0]		connection bus. Data in SHM register	Defective SHM	
		incorrect.	1. Replace controller board.	
		Timer error between ASIC and CPU		
			System firmware problem	
		The CPU checks if the ASIC timer works	Defective RAM-DIMM	
[0D05]	В	properly compared with the CPU timer.	Defective controller	
		If the ASIC timer does not function in the specified range, this SC code is	<ul> <li>Reinstall the controller system firmware.</li> </ul>	
		displayed.	1. Replace the RAM-DIMM.	
			2. Replace the controller board.	
823	Self-o	liagnostic Error: NIB		
	С	MAC address check sum error		
[6101]		The result of the MAC address check	Defective controller	
		sum does not match the check sum stored in ROM.	<ol> <li>Replace the controller.</li> </ol>	
[6104]	С	PHY IC error		
		The PHY IC on the controller cannot be correctly recognized.	Same as SC823-[6101]	
	С	PHY IC loop-back error		
[6105]		An error occurred during the loop-back test for the PHY IC on the controller.	Same as SC823-[6101]	
		Self-diagnostic Error: NVRAM		
824	В	The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective.	<ul> <li>NVRAM damaged or abnormal</li> <li>Backup battery has discharged</li> <li>NVRAM socket damaged</li> <li>1. Replace the NVRAM.</li> </ul>	
826	В	Self-diagnostic Error: RTC/Optional NVRAM		

		[1501]: Clock error		
		<ul> <li>An RTC device is recognized, and the difference between the RTC device and the CPU exceeds the defined limit.</li> <li>No RTC device is recognized.</li> </ul>	<ul> <li>RTC defective</li> <li>NVRAM without RTC installed</li> <li>Backup battery discharged</li> <li>Replace the NVRAM with another NVRAM with an RTC device.</li> </ul>	
		[15FF]: RTC not detected		
	В	The RTC device is not detected.	<ul> <li>NVRAM without RTC installed</li> <li>Backup battery discharged</li> <li>Replace the NVRAM with another NVRAM with an RTC device.</li> </ul>	
827	Self-	diagnostic Error: RAM		
		Verification error		
[0201]	В	Error is detected during a write/verify check for the standard RAM (SDRAM DIMM).	<ul> <li>Loose connection</li> <li>Defective SDRAM DIMM</li> <li>Defective controller</li> <li>1. Replace the SDRAM DIMM.</li> <li>2. Replace the controller.</li> </ul>	
		Resident memory error		
[0202]	В	The SPD values in all RAM DIMM are incorrect or unreadable.	<ul> <li>Defective RAM DIMM</li> <li>Defective SPD ROM on RAM DIMM</li> <li>Defective 12C bus</li> <li>1. Replace the RAM DIMM.</li> </ul>	
828	Self-	diagnostic Error: ROM		
[0101]	В	Boost lap code error The boot monitor and OS program stored in the ROM DIMM is checked. If the check sum of the program is incorrect, this SC code is displayed.	<ul> <li>Defective ROM DIMM</li> <li>Defective controller</li> <li>1. Replace the ROM DIMM.</li> <li>2. Replace the controller.</li> </ul>	
[0104]	В	ROMFS error		

		All areas of the ROM DIMM are checked. If the check sum of all programs stored in the ROM DIMM is incorrect, this SC code is displayed.		
829	Self-	diagnostic Error: Optional RAM		
		Verification error (Slot 1)		
[0401]	С	The data stored in the RAM in Slot 1 does not match the data when reading.	<ul> <li>Not specified RAM DIMM installed</li> <li>Defective RAM DIMM</li> <li>1. Replace the RAM DIMM.</li> <li>2. Replace the controller board.</li> </ul>	
		Composition error (Slot 1)		
[0402]	С	The result of checking the composition data of the RAM in Slot 1 on the controller is incorrect.	<ul> <li>Not specified RAM DIMM installed</li> <li>Defective RAM DIMM</li> <li>1. Replace the RAM DIMM.</li> <li>2. Replace the controller board.</li> </ul>	
	В	Self-diagnostic Error: Clock Generator		
838		A verify error occurred when setting data was read from the clock generator via the I2C bus.	<ul> <li>Defective clock generator</li> <li>Defective I2C bus</li> <li>Defective I2C port on the CPU</li> <li>1. Replace the controller board.</li> </ul>	
		Wireless card startup error		
853	С	The machine starts up. → The IEEE802 1 1 b card connection board is recognized. → The wireless LAN card or bluetooth card is not recognized.	<ul> <li>Loose connection between the wireless card and the connection board</li> </ul>	
		Wireless card access error		
854	С	The machine has been reading the data from the card. → The machine loses access to the card; the wireless LAN card or bluetooth card connection board is still recognized.	Loose connection between the wireless card and the connection board	
855	С	Wireless card error		

		Some illegal data is found in the card. • Defective wireless card		
		Wireless card connection board error		
856	С	An error is detected in the wireless LAN card or bluetooth card connection board.	<ul> <li>Defective wireless card connection board</li> </ul>	
		USB I/F Error		
857	С	USB interface error is detected.	<ul> <li>Defective controller</li> <li>Check the USB connections, and make sure that they are securely connected.</li> </ul>	
			2. Replace the controller board.	
		SD card authentication error		
866	С	A digital license error of an SD card	• SD card data has corrupted.	
		application is detected.	1. Store correct data in the SD card.	
867	В	SD card error		
		An application SD card is removed from the boot slot while an application is activated.	• An application SD card is ejected.	
	В	SD card access error		
		(-13 to -3: File system error, other number: Device error)		
			• SD card not inserted correctly	
			• SD card defective	
			Controller board defective	
868		An error report is sent from the SD card	<ol> <li>For a file system error, format the SD card on PC.</li> </ol>	
		reader.	2. For a device error, turn the main switch off and on.	
			3. Remove and re-install the SD card.	
			4. Replace the SD card.	
			5. Replace the controller.	
870	С	Address book data error		

		<ul> <li>The address book in the hard disk is accessed. → An error is detected in the address book data; address book data is not read; or data is not written into the address book</li> <li>Note</li> <li>To recover from the error, do any of the following countermeasures:</li> <li>Format the address book by using SP5-846-050 (all data in the address book-including the user codes and counters-is initialized).</li> </ul>	<ul> <li>Data corruption</li> <li>Defective hard disk</li> <li>Defective controller software</li> <li>Replace the hard disk (the user codes and counters are recovered when the main switch is turned on if those data are stored in Smart Device Monitor for Admin).</li> </ul>
		File Format Converter (MLB) error	
880	В	A request to get access to the MLB was not answered within the specified time.	MLB defective

# SC9xx

900	В	Electronic total counter error		
		The value of the total counter is out of the normal range.	Defective NVRAM	
	С	Printer error		
920		An application error that stops the machine operation is detected.	<ul> <li>Defective software</li> <li>1. Unexpected hardware resource (e.g., memory shortage)</li> </ul>	
921	С	Printer font error		
		A necessary font is not found in the SD card when the printer application starts.	<ul> <li>A necessary font is not found in the SD card.</li> <li>The SD card data is corrupted.</li> <li>Check that the SD card stores correct data.</li> </ul>	
990	В	Software performance error		

		The software attempted to perform an unexpected operation. <b>NOTE:</b> When this error occurs, the file name, address, and data will be stored in NVRAM. This information can be checked by using SP7-403. See the data and the situation in which this SC occurs. Then report the data and conditions to your technical control center.	<ul> <li>Software defective</li> <li>Internal parameter incorrect</li> <li>Insufficient working memory</li> </ul>	
		Software continuity error		
991	D	The software attempted to perform an unexpected operation. However, unlike SC990, the process can keep on running.	<ul> <li>Logged only; the machine can continue to operate</li> </ul>	
		Undefined error		
992	В	An error not controlled by the system occurred (the error does not come under any other SC code).	• Defective software program	
	С	Application function selection error		
			Software for that application is defective	
997		The application selected by a key press	<ul> <li>An option required by the application (RAM, DIMM, board) is not installed.</li> </ul>	
		on the operation panel does not start or ends abnormally.	<ul> <li>Too complicated nest of the fax group address</li> </ul>	
			<ol> <li>As for the fax operation problem, simplify the nest of the fax group address.</li> </ol>	
		Application start error		
998	В	B After switching the machine on, the	<ul> <li>Software for that application is defective</li> </ul>	
		(No applications start or end normally.)	<ul> <li>An option required by the application (RAM, DIMM, board) is not installed.</li> </ul>	

	1. Check the setting of SP5875-001. If
	the setting is set to "1 (OFF)", change
	it to "O (OFF)".

# **Electrical Component Troubleshooting**

# Sensor/Switch Open Errors

Sensor	Connector	Message	Remarks
De nistration Server	CN127		
Registration Sensor	SN	raper jam	-
	CN129	1	
Paper End Sensor	SN	Load paper	-
Bypass Paper End	CN130		The machine cannot detect paper on
Sensor	SN	(INone)	the bypass tray.
	CN128	<b>D</b>	
Paper Path Sensor	SN	Paper Jam	-
5.4.6	CN128		
Exit Sensor	SN	Paper Jam	-
Image Density (ID)	CN132		
Sensor	SN	(INone)	Print quality may become worse.
Toner Density (TD)	CN123	SC901	The connector is shared with the mechanical total counter.
Sensor	PCU	Reset PCU correctly	-
	CN126	SC120	-
Scanner Hr Sensor	SN	SC120	-
	CN126	SC120	-
Platen Cover Sensor	SN	(None)	The copier does not warm up when you open the platen cover.
DF Guide Open	DF CN103	Paper jam	-
Sensor	SN	(None)	-

Sensor	Connector	Message	Remarks
DF Original Set	DF CN 103	Paper jam	-
Sensor	Sensor	(None)	Originals are not detected.
DF Registration	DF CN 103	Durantari	-
Sensor	SN	raper jam	Originals are correctly transported.
Inventor Concer	DF CN 103	Paper jam	-
Inverter Sensor	SN	(None)	-
Evit Samaan	DF CN 103	Dava an iana	-
Exir Sensor	SN	raper jam	-
	CN114	Right door open	-
Front Door Switch	SW	Front/Right door open	The message depends on which circuit is open (white → front; blue → right).
	CN114	Right door open	-
Kigni Door Switch	SW	Right door open	-

CNxxx: The connector on the BICU board.

DF CNxxx: The connector on the DF connection board.

SN: The connector on the sensor.

SW: The connector on the switch.

PCU: The connector on the PCU.

# **Blown Fuse Conditions**

All of these fuses are on the power supply unit.

Euro	Rating		
Fuse 120 V		220 – 240 V	Ar main swirch ON
FU1	15A/125V	8A/250 V	No response
FU2	5A/125V	2.5A/250V	No response

# BICU LED Display

Number	Function	
LED2	LED2 blinks in normal operation.	

4. Troubleshooting

# Service Program

### Contract Important

• Do not let the user access the SP mode or the SSP mode. Only service representatives are allowed to access these modes. The machine operation is NOT guaranteed after any person other than service representatives accesses the SP mode.

# Using SP and SSP Modes

The following two modes are available:

- SP Mode (Service Program Mode): The SP Mode includes the programs that are necessary for standard maintenance work.
- SSP Mode (Special SP Mode): The SSP Mode includes SP-Mode programs and some special programs. You need some extra knowledge to use these special programs. For details, consult your supervisor.



# Starting SP Mode

- 1. Type the keys as follows:  $\textcircled{} \rightarrow \textcircled{} \rightarrow$
- 2. Press the 🔭 key and hold it down until the SP-mode menu is displayed (about 3 seconds).

#### **Selecting Programs**

- When a blinking underscore (or several blinking underscores) is displayed, you can type a number from the numeric keypad [D].
- When the sign "◀►/OK" [A] is displayed upper right corner, you can scroll through the menu by pressing the left-arrow key [B] or the right-arrow key [C]. To select program, press the OK key [F].

#### **Specifying Values**

- 1. After locating a program, press the OK key. A blinking underscore (or several blinking underscores) indicates which value you can change. The value in parentheses is the default value of the menu.
- 2. Type a necessary value from the numeric keypad. To switch between positive (plus) and negative (minus) values, press the 🛞 key.
- 3. To validate the value, press the OK key. To cancel the value, press the escape key [E].

#### Activating Copy Mode

You can activate the copy mode while the SP mode is running. When you do so, the copier outputs images or patterns that help you adjust the SP setting.

- 1. Press the 🛞 key. The copy mode is activated.
- 2. Specify copy settings and press the 🛞 key.
- 3. To return to the SP mode, press the 🐑 key.

#### Note

• You cannot end the SP mode while the copy mode is activated.

#### Quitting Programs/Ending (S) SP Mode

Press the E key or the escape key to quit the program. You can end the SP mode by pressing one of these keys several times.

#### **Copier Service Program Mode Tables**

#### Conventions used in the tables:

- Asterisk (\*): The settings are saved in the NVRAM. Most of them return to the default values when you
  execute SP5-801-002. CTL indicates that the data is contained in NVRAM on the controller board.
- DFU: The program is for design/factory use only. Do not change the settings.

• Brackets ([]): The brackets enclose the setting rage, default value, and minimum step with unit ([Minimum to Maximum / **Default** / Step]).

# SP1-XXX (Feed)

1001*	Leading Edge Registration	[-9.0 to 9.0 / <b>0.0</b> / 0.1 mm/step]
10011	All Trays	Adjusts the leading-edge registration (🖝 "Adjusting
1001 2	By-pass	Copy Image Area" in the section "Replacement and
1001 3	Duplex	Adjustment").

1002*	side-to-side Registration	[-9.0 to 9.0 / <b>0.0</b> / 0.1 mm/step]	
1002 1	1 st Tray	Adjusts the side-to-side registration (🖝 "Adjusting Copy	
1002 2	2nd Tray	Image Area" in the section "Replacement and Adjustment"). SP1-002-001 is applied to all trays.	
1002 5	By-pass	SP1-002-002 and 005 adjusts the difference from SP1-002-001.	
1002 6	Duplex	Adjusts the side-to-side registration of the 2nd side in duplex copying. The 1st side is adjusted by SP1-002-001 through 005.	

1003*	Paper Feed Timing	Adjusts the amount of paper buckle on the registration roller.
1003 1	l st tray	[0 to 10 / <b>5</b> / 1 mm/step]
1003 3	Bank Trays	[0 to 10 / <b>5</b> / 1 mm/step]
1003 4	By-pass	[0 to 10 / <b>5</b> / 1 mm/step]
1003 5	Duplex	[0 to 20 / <b>5</b> / 1 mm/step]

1103*	Fusing Idling	[ <b>0</b> = No / 1 = Yes]	
	Enables or disables the contact-release control. The following table lists the results.		ng table lists the results.
1103 1	Setting	0 = No	1 = Yes
	C-R control	Works	Does not work

Idling time	Shorter	Longer
Fusing quality	Lower	Higher

	Fusing Temperature Adjustment		
1105*	Adjusts the target fusing temperature. Note that the thermistor is at the center of the hot roller.		
1105 1	Warm Up-Center	[140 to 180 / 160 / 1°C/step]	
1105 3	Standby-Center	[140 to 160 / <b>150</b> / 1°C/step]	
1105 5	Copying-Center	[140 to 180 / <b>160</b> / 1°C/step]	
1105 7	Low Level 2-Center	[0 to 80 / <b>60</b> / 1°C/step]	
1105 9	Thick-Center	[140 to 185 / <b>165</b> / 1°C/step]	

1106	Display Fusing
11061	Displays the fusing temperature.

	Fusing Soft Start <b>DFU</b>		
1107*	Adjusts the number of zero-cross cycles of the fusing lamp AC supply needed to bring the fusing lamp power to 100% while bringing the lamp up to the standby temperature or while copying. Increase this value if the machine is experiencing sudden power dropouts.		
1107 1	Warm Up Soft Start [0 = 10 times / 1 = 20 times / <b>2</b> = 50 times]		
1107 2	Other Soft Start	[0 = 10 times / 1 = 20 times / <b>2</b> = 50 times / 3 = 1 time]	
11073	Soft Stop Setting	[0: No / 1: Yes]	

1108*	Set-Fusing Start	[0 = 1s / 1 = 1.5s / 2 = 2s]
1108 1	Specifies the interval for fusing-temperature control.	

1109	Nip Band Check
1109 1	Conducts the nip band check (  "Adjusting Nip Band" in the section "Replacement and Adjustment").

1110*	Fan Control Timer	[30 to 60 / <b>30</b> / 1 s/step]		
11101	Specifies the fan control time. The fan motor keeps its operating speed for the specified time before changing the speed or stopping. The fan control timer prevents the exhaust f from suddenly stopping. This function protects the copier from overheating.			

1159*	Fusing Jam SC	[ <b>0 =</b> No / 1 = Yes]	
1159 1	Enables or disables consecutive jam detection at the fusing unit. If this SP is set to "1" (de 0), consecutive fusing jam alarm occurs (SC559) when the machine detects three consecutive paper jams at the fusing unit.		

Displays the fusing lamp power control frequency (as detected by the zero cross signal generator). The displayed value is 1/5 the actual frequency: 10 and lower = 50 Hz, and higher = 60 Hz.	1

1911*	By-pass Envelope	[ <b>0</b> = No / 1 = Yes]	
1911 1	The program dedicated to envelope printing runs when you enable this program (SP1-911-001) and you select "Thick Paper" as the paper type of the by-pass tray (@m > System Settings > Tray Paper Settings > Paper Type: Bypass Tray).		

# SP2-XXX (Drum)

2001*	Charge Roller Bias Adjustment		
	Printing	[-2100 to -1500 / <b>-1650</b> / 1 V/step]	
2001 1	Adjusts the voltage applied to the charge roller for printing. The voltage changes automatically as charge-roller voltage control works. The value here is the base value for the charge-roller voltage control.		
	ID sensor pattern	[0 to 400 / <b>300</b> / 1 V/step]	
2001 2	Adjusts the voltage applied to the charge roller for the ID sensor pattern (as part of charge-roller voltage correction). The charge-roller voltage is obtained by adding SP2-001-002 to the value of SP2-001-001.		

2101*	Erase Margin Adjustment	Adjusts the width of the erased area (🖝 "Adjusting Copy Image Area" in the section "Replacement and Adjustment").		
2101 1	Leading edge	[0.0 to 9.0 / <b>3.0</b> / 0.1 mm/step] Specification: 2 ± 1.5 mm		
Trailing		[0.0 to 9.0 / 4 <b>.0</b> / 0.1 mm/step] Specification: 2 +2.5/–1.5 mm		
	The rear trailing edge is this value plus 1.2 mm.			
2101 3	Left side	[0.0 to 9.0 / <b>2.0</b> / 0.1 mm/step] Specification: 2 ± 1.5 mm		
	The rear left edge is this value plus 0.3 mm.			
2101 4	Right side	[0.0 to 9.0 / <b>2.0</b> / 0.1 mm/step] Specification: 2 +2.5/-1.5 mm		
	The rear right edge is this value plus 0.3 mm.			

2201*	Development Bias Adjustment		
	Printing	[-1500 to -200 / <b>-650</b> / 1 V/step]	
2201 1	Adjusts the voltage applied to the development roller for printing. Image density becomes higher when you specify a smaller value (a greater absolute value). Image density becomes lower when you specify a greater value (a smaller absolute value).		
2201 2	ID sensor pattern	[-2 = LL (220 V) / -1 = L (260 V) / <b>0</b> = N (300 V) / 1 = H (340 V) / 2 = HH (380 V)]	
	Adjusts the voltage applied to the development roller for the ID sensor pattern. The voltage applied is obtained by adding SP2-201-002 to SP2-201-1. The setting affects ID sensor pattern density, which in turn affects the toner supply.		

2213*	Outputs after Near End
2213 1	[ <b>0</b> = 50 pages / 1 = 20 sheets] Sets the number of copy/print/fax pages that can be made after toner near-end has been detected. Reduce the number of pages if the user normally makes copies with a high image ratio.

2214	Developer Initialization
22141	Initializes the TD sensor toner supply target voltage and the TD sensor gain value. Execute this SP replacing the developer or the TD sensor.

2221	ID Sensor Error Analysis (🖝 "ID Sensor Error Analysis (SP2-221)")			
2221 1	Vsg Displays the Vsg value.			
2221 2	Vsp	Displays the Vsp value.		
2221 3	PWM	Displays the PWM value.		
2221 4	Vsdp	Displays the Vsdp value.		
2221 5	Vt	Displays the Vt value.		
2221 6	Vts	Displays the Vts value.		

	_		
1			
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	2	2	2

2301*	Transfer Current Adjustment (🖝 "Image Transfer Current").	
2301 1	Normal paper	$[-2 = -4 \ \mu\text{A} / -1 = -2 \ \mu\text{A} / 0 = 0 \ \mu\text{A} / 1 = 2 \ \mu\text{A} / 2 = +4 \ \mu\text{A}]$
	Adjusts the current applied to the transfer roller when feeding from a paper tray. Use a high setting if the user normally feeds relatively thick paper (within spec) from a paper tray	
	Thick/Special paper	$[-2 = -4 \ \mu\text{A} / -1 = -2 \ \mu\text{A} / 0 = 0 \ \mu\text{A} / 1 = 2 \ \mu\text{A} / 2 = +4 \ \mu\text{A}]$
2301 2	Adjusts the current applied to the transfer roller when feeding from the by-p a high setting (a) if the user normally feeds relatively thick paper from the by (b) if waste toner is re-attracted from the drum (which can occur when using tra	
2301 3	Duplex	$[-2 = -4 \ \mu\text{A} \ / \ -1 = -2 \ \mu \ / \ 0 = 0 \ \mu\text{A} \ / \ 1 = 2 \ \mu\text{A} \ / \ 2 = +4 \ \mu\text{A}]$
	Adjusts the current applied to the transfer roller when carrying out a duplex job. Use this SP if there is poor image transfer on the rear side of duplex copies.	
	Cleaning	[-10 to 1 / <b>-1</b> / 1 µA/step]
2301 4	Adjusts the current applied to the transfer roller for roller cleaning. Increase the current if toner remains on the roller after cleaning. (Remaining toner may cause dirty background on the rear side.)	

2802	Forced Developer Churning
2802 1	Initializes the developer and checks the TD sensor output (Vt). The machine mixes the developer for 2 minutes while reading and displaying the Vt value. The machine does not initialize the TD sensor output. If the machine has not been used for a long period, prints may have a dirty background. In a case like this, use this SP to mix the developer. The message "Completed" is displayed when the program ends normally.

2906*	Tailing Correction	
	Shift value	[0.0 to 1.0 / <b>0.0</b> / 0.1 mm/step]
2906 1	5 Shifts the image position at the intervals specified by SP2-906-002. When the cop continuously printing vertical lines (such as in tables), the paper may not separate con This SP can prevent this.	
2004.2	Interval	[1 to 10 / <b>1</b> / 1 page/step]
2900 Z	Changes the interval of the image position shift specified by SP2-906-001.	

2908	Forced Toner Supply
Supplies the toner to the development unit. The processing stops under either following conditions:	
2908 1	<ul> <li>The toner density in the development unit reaches the standard level.</li> </ul>
	<ul> <li>The processing has continued for two 2 minutes.</li> </ul>

2915*	Polygon Mirror Motor Idling Time	[0 = None / <b>1</b> = 15 s / 2 = 25 s]
2915 1	Specifies the polygon mirror motor idli when an original is set, a key is presso stops if no manual operation is perfor motor does not stop while the copier i	ng time. The polygon mirror motor starts its operation ed, or the platen cover or DF is opened. The motor med for the specified time. When you set "O", the is in the standby status.

2921*	Toner Supply Mode	
2921 1	[0 = Sensor 1 / 1 = Sensor 2 (DFU)] Selects the toner supply mode. Keep the default setting as long as the TD sensor is working	

2922* Toner Supply Time	[0.1 to 5.0 / <b>0.6</b> / 0.1 s/step]
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	Adjusts the toner supply time. The toner supply motor remains on for the specified time. To
2922 1	validate this setting, select "0" in SP2-921-001. Specify a greater value if the user tends
	to make many copies having high proportions of solid black image areas.

2926*	Standard Vt	[0.00 to 5.00 / <b>2.50</b> / 0.01 V/step] <b>DFU</b>
2926 1	Adjusts Vts (the Vt value for new deve during the TD sensor initial setting pro "0", "1", or "2".	loper). The TD sensor output is adjusted to this value ocess. This SP is effective only when SP2-921001 is

2927*	ID Sensor Control	[0 = No / 1 = Yes]
2927 1	Determines whether the ID sensor sign Keep the default value in usual operc	nal is referenced or not for the toner density control. tions.

2928	Toner End Clear	
2928 1	<ul> <li>Clears the following messages and counters without supplying the toner:</li> <li>Toner near end message</li> <li>Toner end message</li> <li>Toner near end counter</li> <li>Toner end counter</li> <li>Do not use this SP in usual operations. When the toner in the development unit is abnormally insufficient, the drum may attract the toner carrier to its surface. The toner carrier damages the drum surface</li> </ul>	

2929*	Vref Limits	Adjust the upper or lower Vref limit.
2929 1	Upper	[0.50 to 3.50 / <b>3.20</b> / 0.01V/step] <b>DFU</b>
2929 2	Lower	[0.50 to 3.50 / <b>0.70</b> / 0.01V/step] <b>DFU</b>

2994*	ID Sensor Detection Temperature	[30 to 90 / <b>30</b> / 1 °C/step]
2994 1	Adjusts the temperature threshold. The ID sensor signal is not referenced when the fusing temperature is at the specified level or higher while the copier is recovering or starting up	

2996 1	Cleans or does not clean the transfer roller before each job. Select "1" if the backside of the paper becomes unclean when output. Note that the copier takes a longer time to output the first copy when you select "1". If you select "0", the transfer roller is never cleaned.	
2998*	Main Scan Magnification	[-0.5 to +0.5 / <b>0.0</b> / 0.1%/step]

2998 1	Adjusts the magnification (  "A and Adjustment"). The specificat	djusting Copy Image Area" in the section "Replacement tion is 100 ± 1.0%.

# SP4-XXX (Scanner)

4008*	Sub-Scan Magnification (Scanner)	[-0.9 to +0.9 / <b>0.0</b> / 0.1%/step]
4008 1	Adjusts the sub-scan magnification ( "Replacement and Adjustment").	"Adjusting Copy Image Area" in the section

4009*	Main Scan Magnification (Scanner)	[-0.9 to +0.9 / <b>0.0</b> / 0.1%/step]
4009 1	Adjusts the main-scan magnification ( "Replacement and Adjustment").	"Adjusting Copy Image Area" in the section

4010*	Leading Edge Scan Registration	[-5.0 to +5.0 / <b>0.0</b> / 0.1 mm/step]
4010 1	Adjusts the leading edge registration (• "Replacement and Adjustment").	"Adjusting Copy Image Area" in the section

4011*	Side-to-side Scanner Registration	[-2.0 to +2.0 / <b>0.0</b> / 0.1 mm/step]
40111	Adjusts the side-to-side registration for so Area" in the section "Replacement and	canning in platen mode (& "Adjusting Copy Image Adjustment").

4012*	Scan Erase Margin	[0 to 9.0 / <b>1.0</b> / 0.1 mm/step]
4012 1	Leading edge	
4012 2	Trailing edge	Adjusts the scanning margin. Generally, the scanning
4012 3	Left Side	area, use SP2-101.
4012 4	Right Side	

4013	Scanner Free Run
4013 1	Conducts the scanner free run with the exposure lamp on.

4015*	White Plate Scanning	
4015 1	Start position	[-3.0 to +6.0 / <b>0.0</b> / 0.1 mm/step]
	Adjusts the scanning start position on the white plate. The base value is 17.8 mm from the scanner home position. This SP specifies the offset from this base value.	
4015 2	Scanning length	[-3.0 to +6.0 / <b>0.0</b> / 0.1 mm/step]
	Adjusts the distance of the white plate scan. The scan begins from the start position (SP4-015-001) and ends at the specified distance. The base value is 2.0 mm. This SP decides the offset from this base value. Specify 0 (zero) or a larger value.	

4428	Scan Auto Adjustment
4428 1	Conducts the automatic scanner adjustment. Use this SP after replacing the white plate (     "Scanning" in the section "Replacement and Adjustment").

4606	SBU Offset-Target	
4607 1	EVEN	
4607 2	ODD	[0 to 63 / <b>10</b> / 1 /step] Adjusts the target black level for each signal. These are used for offset adjustment in the SBU.
4607 3	RED	
4607 4	GREEN	
4607 5	BLUE	

4607	SBU Gain-Target	
4607 1	EVEN	
4607 2	ODD	[O to 255 / <b>180</b> / 1 /step] Adjusts the target white level for each signal. These are used for gain adjustment in the SBU.
4607 3	RED	
4607 4	GREEN	
4607 5	BLUE	
4623	SBU Offset-Result	
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4623 1	EVEN	
4623 2	ODD	[0 to 255 / <b>0</b> / 1 /step]
4623 3	RED	Displays the result value of the offset adjustment in the
4623 4	GREEN	SBU.
4623 5	BLUE	

4628	SBU Gain-Result	
4628 1	EVEN	
4628 2	ODD	[0 to 255 / <b>0</b> / 1 /step] Displays the result value of the gain adjustment in the SBU
4628 3	RED	
4628 4	GREEN	
4628 5	BLUE	

4640	SBU Offset-Loop	
4640 1	EVEN	
4640 2	ODD	
4640 3	RED	[0 to 10 / 0 / 1 / step] Displays the number of the offset adjustment in the SBU
4640 4	GREEN	
4640 5	BLUE	

4641	SBU Gain-Loop	
4641 1	EVEN	
4641 2	ODD	
4641 3	RED	[0 to 10 / 0 / 1 / step] Displays the number of the gain adjustment in the SBU.
4641 4	GREEN	
4641 5	BLUE	

4642	SBU Offsetpre-Loop	
4642 1	EVEN	
4642 2	ODD	[0 to 3 / <b>0</b> / 1 /step]
4642 3	RED	Displays the number of the pre-offset adjustment in the
4642 4	GREEN	SBU.
4642 5	BLUE	

4646	SBU Adj Error	
4646 1	Offsetpre-Mono	
4646 2	Offsetpre-Color	
4646 3	Offset-Mono	[ <b>0</b> = Success / 1 = Failure]
4646 4	Offset-Color	Displays the result of SBU adjustment.
4646 5	Gain-Mono	
4646 6	Gain-Color	

4654*	SBU Offset-Adjust	
4654 1	EVEN	
4654 2	ODD	[0 to 255 / - / 1 /step]
4654 3	RED	Displays the offset value of the offset adjustment in the SBU.
4654 4	GREEN	
4654 5	BLUE	

4658*	SBU Gain-Adjust	
4658 1	EVEN	
4658 2	ODD	[0 to 511 / - / 1 /step]
4658 3	RED	Displays the gain value of the gain adjustment in the SBU.
4658 4	GREEN	

4658 5	BLUE	

4685*	Gray Balance-Book	
4685 1	RED	[128 to 383 / <b>256</b> / 1 /step]
4685 2	GREEN	Adjusts the coefficient of the gray balance adjustment
4685 3	BLUE	the book scanning.

4686*	Gray Balance-DF	
4686 1	RED	[128 to 383 / <b>256</b> / 1 /step]
4686 2	GREEN	Adjusts the coefficient of the gray balance adjustment for
4686 3	BLUE	the DF scanning.

4687*	White Balance	
4687 1	Adjust	[222 to 281 / <b>256</b> / 1 /step] Adjust the correction value for the white plate adjustment.
4687 2	Result	Displays the current value of the white plate adjustment. If SP4-428 has not been done, this value is "0".

4690	White Peek Init	
4658 1	EVEN	
4658 2	ODD	[0 to 255 / - / 1 /step]
4658 3	RED	Displays the white offset value of the pre-offset adjustment
4658 4	GREEN	in the SBU.
4658 5	BLUE	

4693	Black Ave Init	
4658 1	EVEN	[0 to 255 / - / 1 /step]
4658 2	ODD	Displays the black offset value of the pre-offset adjustment in the SBU.

4658 3	RED
4658 4	GREEN
4658 5	BLUE

4902*	Exposure Lamp ON	[ <b>0</b> : OFF / 1: ON]
4902 1	Turns the exposure lamp on or o specify "0".	ff. To turn on the exposure lamp, specify "1"; to turn it off

4903*	ADS Level	[0 to 255 / <b>252</b> / 1/step]
4903 1	Adjusts the ADS level.	

4904*	ADS Lower Limit	[0 to 255 / <b>80</b> / 1/step]
4904 1	Adjusts the ADS lower limit.	

4905*	ADS Level	[ <b>0</b> = All / 1 = One]
4905 1	Checks the whole area (0 = All) or the specific areas (1 = One) to adjust the ADS level. The specific areas are as follows:	
	• ARDF: ±37.5 mm from the center	
	• Platen Cover: 15 to 90 mm from the left edge	

4921*	Image Adj Selection	
	Сору	[0 to 10 / 0 / 1]
	Selects which mode the settings from SP4-922 to SP4-932 are used for.	
001	0 = None, 1 = Text 1, 2 =Text 2, 3= Photo 1, 4 = Photo 2, 5 = Photo 3, 6 = Special 1, 7 = Special 2, 8 = Special 3, 9 = Special 4, 10 = Special 5	
002	Fax	[0 to 5 / <b>0</b> / 1]
	Selects which mode the settings from SP4-922 to SP4-932 are used for.	
	0 = None, 1 = Text 1, 2 = Text 2, 3 = Photo 1, 4 = Photo 2,	
	5 = Special 1	

003	Scanner (Mono)	[0 to 4 / 0 / 1]
	Selects which mode the settings from SP4-922 to SP4-932 are used for. 0 = None, 1 = Text 1, 2 = Text 2, 3= Photo 1, 4 = Photo 2	
	Scanner (Color)	[0 to 2 / 0 / 1]
004	Selects which mode the setting of SP4-935 is used for. 0 = None, 1 = Color Text, 2 = Color Photo	
	Scanner (Gray Scale)	[0 or 1 / <b>0</b> / - ]
005	Selects which mode the setting of SP4-936 is used for. 0 = None, 1 = Gray Scale	

	Scanner Gamma	
<b>4922*</b> Selects "text" or "photo" as the priority output mode. This setting is applied to processing modes of SP4-921.		priority output mode. This setting is applied to all image
001	Сору	
002	Fax	[ <b>0</b> =System default/ 1=Text/ 2=Photo]
003	Scanner	

	Notch Selection	
4923*	<ul> <li>Selects the value of the center ID adjustment notch for the ID adjustment LEDs.</li> <li>Normally the center notch is 3 (range 1-5). If -1 is selected, each notch shifts do (becomes lighter). If +1 is selected, each notch shifts up (becomes darker).</li> <li>This setting is applied to all image processing modes of SP4-921.</li> </ul>	
001	Сору	
002	Fax	[-1 = Light / <b>0</b> = Normal / +1 = Dark]
003	Scanner	

	Texture Removal
4926*	Adjusts the texture removal level that is used with error diffusion. 0: The default value for each mode is used. Text 1, Photo 2, Special 2, and Special 5 have a default of 3 and Photo 1-3 have a default of 1.

	<ul> <li>1: No removal applied.</li> <li>2 to 5: Removal applied at the level specified here. The higher the setting (level), the less clear the image will become (more texture removal). This setting is only applied to the originals in SP4-921.</li> </ul>	
001	Сору	
002	Fax	[0 to 6 / <b>0</b> / 1/step]
003	Scanner	

	Line Width Correction	
4927*	Adjusts the line width correction algorithm. Positive settings produce thicker lines; negative settings produce thinner lines. This setting is only applied to the originals in SP4-921.	
001	Сору	
002	Fax	[-2 to 2 / <b>0</b> / 1/step]
003	Scanner	

	Independent Dot Erase	
4928*	Selects the dot erase level. Higher settings provide greater erasure. This setting is only applied to the originals in SP4-921.	
001	Сору	
002	Fax	[-2 to 2 / <b>0</b> / 1/step]
003	Scanner	

4929*	Positive/Negative	[ <b>0 = No</b> , 1 = Yes]
	Inverts white and black. This setting is only applied to the originals in SP4-921.	
001	Сору	
002	Fax	

4930*       Sharpness-Edge       [-2 to 2 / 0 / 1/step]         Adjust the clarity. This setting is only applied to the originals in SP4	Sharpness-Edge	[-2 to 2 / <b>0</b> / 1/step]
	ly applied to the originals in SP4-921.	

001	Сору
002	Fax
003	Scanner

4931*	Sharpness-Solid	[-2 to 2 / <b>0</b> / 1/step]
	Adjust the clarity. This setting is only applied to the originals in SP4-921.	
001	Сору	
002	Fax	
003	Scanner	

4932*	Sharpness-Low ID	[-2 to 2 / <b>0</b> / 1/step]
	Adjust the clarity. This setting is only applied to the originals in SP4-921.	
001	Сору	
002	Fax	
003	Scanner	

4935*	Color Image Adjust	
001	Main Scan MTF Level	[0 to 3 / <b>0</b> / 1/step]
	Adjust the MTF level for the main scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: None, 1: Weak, 2: Middle,	3: Strong
	Main Scan MTF Strength	[0 to 5 / <b>0</b> / 1/step]
002	Adjust the MTF strength for the main scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: 1, 1: 1/32, 2: 1/16, 3: 1/8, 4: 1/4, 5: 1/2	
	Sub Scan MTF Level	[0 or 1 / <b>0</b> / 1/step]
003	Turns on or off the MTF for the sub scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: No, 1: Yes	

004	Sub Scan MTF Strength	[0 to 5 / <b>0</b> / 1/step]
	Adjust the MTF strength for the sub scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: 1, 1: 1/32, 2: 1/16, 3: 1,	/8, 4: 1/4, 5: 1/2
	Smooth Level	[0 to 2 / <b>0</b> / 1/step]
005	Adjust the smooth level. This setting is only activated for the specified mode with SP4-921-004.	
	0: None, 1: Weak, 2: Strong	
006	Brightness	[0 to 255 / <b>128</b> / 1/step]
	Adjust the brightness level. This setting is only activated for the specified mode with SP4-921-004.	
007	Contrast	[0 to 255 / <b>128</b> / 1/step]
	Adjust the contrast level. This setting is only activated for the specified mode with SP4-921-004.	

4936*	Gray Scale Image Adjust	
001	Main Scan MTF Level	[0 to 15 / <b>0</b> / 1/step]
	Adjust the MTF level for the main scan. This setting is only activated for the specified mode with SP4-921-004. O: None, 1: Level 1 to 15: Level 15	
	Main Scan MTF Strength	[0 to 5 / <b>0</b> / 1/step]
002	Adjust the MTF strength for the main scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: 1, 1: 1/32, 2: 1/16, 3: 1/8, 4: 1/4, 5: 1/2	
003	Sub Scan MTF Level	[0 to 13 / <b>0</b> / 1/step]
	Adjust the MTF level for the sub scan. This setting is only activated for the specified mode with SP4-921-004.	
	0: No, 1: Level 1 to 13: Level 13	
004	Sub Scan MTF Strength	[0 to 5 / <b>0</b> / 1/step]
	Adjust the MTF strength for the sub scan. This setting is only activated for the specified mode with SP4-921-004.	

	0: 1, 1: 1/32, 2: 1/16, 3: 1/8, 4: 1/4, 5: 1/2	
005	Smooth Level	[0 to 7 / <b>0</b> / 1/step]
	Adjust the smooth level. This setting is only activated for the specified mode with SP4-921-004. 0: None, 1: Level 1 to 7: Level 7	
006	Brightness	[0 to 255 / <b>128</b> / 1/step]
	Adjust the brightness level. This setting is only activated for the specified mode with SP4-921-004.	
007	Contrast	[0 to 255 / <b>128</b> / 1/step]
	Adjust the contrast level. This setting is only activated for the specified mode with SP4-921-004.	

4941*	White Line Erase	[0 to 2 / 1 / 1/step]		
	Selects the white line erase level. 0: None 1: Weak 2: Strong			
49411	<ul> <li>This setting is effective for all modes.</li> </ul>			
	• 0: White line erase is not used, and white level correction is used instead			
	• This setting is applied regardless of what mode has been selected in SP4-921.			

4942*	Black Line Erase	[0 to 3 / <b>2</b> / 1/step]		
4942 1	Selects the black line erase level. This setting is effective only when originals are scanned by the DF.			
	[0 = No / 1 = Very weak / 2 = Weak / 3 = Strong]			
	This setting is applied regardless of what mode has been selected in SP4-921.			

## SP5-XXX (Mode)

5001	All Indicators On
5001 1	Turns on all LEDs. The LCDs turn on and off every 3 seconds. Press the reset key to end this program.

5024* mm/inch Selection	
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	Selects whether mm or inches are used in the display.			
	<b>↓</b> Note			
001	• After selecting the number, you must turn the main power switch off and on.			
	Europe/Asia model: [ <b>0</b> : <b>mm</b> / 1: inch]			
	American model: [0: mm / 1: inch]			

5045*	Counter Model	[0 to 2 / <b>0</b> / 1 /step] 0: 1 counter (Total) 1: 2 counters (Total and Prints) 2: 2 counters GPC
5045 1	Displays the number of the installed couter.	

5051	Refill Toner Displ (Refill Toner Detection Display)				
	Enables or disables the toner refill detection display.				
001	Toner Refill Detection Display	CTL	[0 or 1 / <b>0</b> /- ] 0: ON, 1: OFF		

5055	Display IP address		
001	Display IP address	CTL	Displays or does not display the IP address on the LCD. [0 or 1 / <b>0</b> / -] 0: No (Not display), 1: Yes (Display)

5056	Coverage Counter		
001	Coverage Counter	CTL	Displays or does not display the coverage counter on the LCD. [0 or 1 / <b>0</b> / -] 0: Not display, 1: Display

5112	Non-Std. Paper Set (Non-Standard Paper Set)	
001	Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3)	
	[0 or   / 0 / - ]	

0: No
1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode.

5113	Optional Counter Type			
001	Optional Counter Type 1	CTL	This program specifies the counter type. <b>0: None</b> 1: Key card (RK 3, 4) 2: Key card (down) 3 to 10: (Japan only) 11: Exp. Key card (Add) 12: Exp. Key card (Deduct)	
002	Optional Counter Type 2	CTL	This program specifies the external counter type. <b>0: None</b> 1: Expansion Device type 1 2: Expansion Device type 2 3: Expansion Device type 3	

5114	Optional Counter I/F	CTL	[ <b>0</b> : Not installed/ 1: Installed (scanning accounting)]
001	MF Key Card Ext. Japan use		

5118	Disable Copying	CTL	[ <b>0</b> : Not disabled/ 1: Disabled]
001	This program disables copying.		

5120*	Clear For Count Remove	[ <b>0</b> =Yes / 1=Standby only / 2=No]		
	Specifies the condition to reset the copy job settings when the key counter is removed.			
5120 1	<ul> <li>1 = Standby only: The settings are cleared when the counter is removed at the end of a job.</li> </ul>			
	• 2 = No: The settings are not cleared under either condition.			
	As for duplex copying, the job s	settings are always preserved regardless of these setting.		

5121*	Counter Up Timing	[ <b>0</b> = Feed In / 1 = Exit]	
	Selects the count-up timing.		
51211	• 0 = Feed: At each paper feed		
	• 1= Exit: At each paper exit		

5150	By-pass Long Paper	CTL	[ <b>0</b> = OFF / 1 = ON]	
	Determines whether the transfer sheet from the by-pass tray is used or not.			
001	Normally the paper length for sub scanning paper from the by-pass tray is limited to 600 mm, but this can be extended with this SP to 1260 mm.			

5167	Fax PrintingCnt Off				
	Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted by an external accounting device.				
001	Fax Printing Counter Off CTL		[ 0 or 1 / <b>0</b> / – ] 0: Automatic printing 1: No automatic printing		

5169	CE Login				
	If you change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode.				
001	CE Login         CTL         [0 or 1 / 0 / -]         0: Disabled         1: Enabled		[0 or 1 / <b>0</b> / - ] 0: Disabled 1: Enabled		

5188	Copy NV Version		
001	Copy NV Version	CTL	Displays the NVRAM version in the controller board.

5302	Set Time
	Adjusts the RTC (real time clock) time setting for the local time zone. Examples: For Japan (+9 GMT), enter 540 (9 hours x 60 min.)
	DOM: +540 (Tokyo) NA :-300 (New York)

	EU :+ 60 (Paris)		
	CH :+480 (Peking)		
	TW :+480 (Taipei)		
	AS :+480 (Hong Kong)		
002	Time Difference	CTL #	[-1440 to 1440 / <b>Area</b> / 1 min./step ]

F

5

5307	Summer Time			
001	ON/OFF	-	[ 0 or 1 / <b>NA, EU, ASIA</b> / 1 /step] 0: Disabled 1: Enabled NA and EUR: 1, ASIA: 0	
	<ul> <li>Enables or disables the summer time mode.</li> <li>Note</li> <li>Make sure that both SP5-307-3 and -4 are correctly set. Otherwise, this SP is not activated even if this SP is set to "1".</li> </ul>			
003	Start       -         Specifies the start setting for the summer time mode.         There are 8 digits in this SP. For months 1 to 9, the "0" cannot be input in the first digit, so the eight-digit setting for -2 or -3 becomes a seven-digit setting.         1 st and 2nd digits: The month. [1 to 12]         3rd digit: The week of the month. [1 to 5]         4th digit: The day of the week. [0 to 6 = Sunday to Saturday]         5th and 6th digits: The hour. [00 to 23]         7th digit: The length of the advanced time. [0 to 9 / 1 hour /step]         8th digit: The length of the advanced time. [0 to 5 / 10 minutes /step]         For example: 3500010 (EU default)         The timer is advanced by 1 hour at am 0:00 on the 5th Sunday in March         • The digits are counted from the left.         • Make sure that SP5-307-1 is set to "1".			
004	End Specifies the end setting for the	- e summer	- time mode.	

There are 8 digits in this SP.
1st and 2nd digits: The month. [1 to 12]
3rd digit: The week of the month. [0 to 5]
4th digit: The day of the week. [0 to 6 = Sunday to Saturday]
5th and 6th digits: The hour. [00 to 23]
The 7th and 8th digits must be set to "00".
• The digits are counted from the left.
<ul> <li>Make sure that SP5-307-1 is set to "1".</li> </ul>

5 401	Access Control				
5401	When installing the SDK application, SAS (VAS) adjusts the following settings. DFU				
006	С	CTL			
016	DS	CTL			
026	F	CTL			
036	S	CTL			
046	Р	CTL	<b>SSP:</b> These SPs are not disclosed due to the security protection.		
076	SDK 1	CTL			
086	SDK 2	CTL			
096	SDK 3	CTL			
200	SDK1 Unique ID	CTL	This ID is overwritten by SAS (VAS) when you install or uninstall the SDK application.		
201	SDK1 Certification Method	CTL	[ 0 to 2 <i>55</i> / <b>0</b> / 1 /step] <b>DFU</b>		
210	SDK2 Unique ID	CTL	DFU		
211	SDK2 Certification Method	CTL	[ 0 to 255 / <b>0</b> / 1 /step] <b>DFU</b>		
220	SDK3 Unique ID	CTL	DFU		

SDK3CertificationCTL[ 0 to 255 / 0 / 1 / step] DFUMethodMethodMethodMethod
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5404	User Code Clear
001	Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [Execute] to clear.

5501	PM Alarm Interval	CTL	-		
001	Printout	[0 to 9999 / <b>0</b> / 1 /step]			
		specified value (1 to 9999) x 1000.			
002	ADF	[ 0 or 1 / 1 / - ]			
		0: No alarm sounds			
		1: Alarm the A(R)D	sounds after the number of originals passing through F ≥ 10,000		

5504	Jam Alarm	CTL	-		
	Sets the alarm to sound for the specified jam level (document misfeeds are not included).				
001	[ 0 to 3 / <b>3</b> / 1 /step]				
	0: Zero (Off), 1: Low (2.5K jams), 2: Medium (3K jams), 3: High (6K jams)				

5505*	Error Alarm
001	Sets the error alarm level. The error alarm counter counts "1" when any SC is detected. However, the error alarm
	example, default 1500 sheets).
	The error alarm occurs when the SC error alarm counter reaches "5".
	[0 to 255 / <b>10</b> / 100 copies per step]

5507	Supply Alarm	CTL	-	
001	Paper Size	<b>0</b> : Off, 1: On,		

003	Toner	<b>0</b> : Off, 1: On,
005	Drum	<b>0</b> : Off, 1: On,
128	Interval :Others	
132	Interval :A3	
133	Interval :A4	
134	Interval :A5	
141	Interval :B4	$[250 \pm 10000 / 1000 / 1 / top]$
142	Interval :B5	
160	Interval :DLT	
164	Interval :LG	
166	Interval :LT	
172	Interval :HLT	

5508*	Auto Call Setting	CTL	-			
001*	Jam Remains		0: Disable, 1: Enable			
001	Enables/disables initiating a call for an unattended paper jam.					
000*	Frequent Jams		0: Disable, <b>1</b> : Enable			
002	Enables/disables initiating a cal	l for co	nsecutive paper jams.			
002*	Door Open		0: Disable, 1: Enable			
003	Enables/disables initiating a call when the front door remains open.					
	Jam Remains: Time		3 to 30 / <b>10</b> / 1 minute /step]			
011*	Sets the time a jam must remain before it becomes an "unattended paper jam". This setting is enabled only when SP5508 004 is set to 1.					
012*	Freq Jam: # of Time		[02 to 10 / <b>5</b> / 1 /step]			
	Sets the number of consecutive paper jams required to initiate a call. This setting is enabled only when SP5508 004 is set to 1.					
013*	Door Open: Time	[C	3 to 30 / <b>10</b> / 1 minute/step]			

Sets the length of time the door remains open before the machine initiates a call. This setting is enabled only when SP5508 004 is set to 1.

	SC/Alarm Setting	CTL	-		
5515	With @Remote in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs.				
001	SC Call				
002	Service Parts Near End	[0 or 1 / <b>1</b> / -] 0: Off, 1: On			
003	Service Parts End				
004	User Call				
006	Communication Test				
007	Machine Information				
008	Alarm Notice				
010	Supply Automatic Order				
011	Supply Management Report	[0 or 1 / <b>0</b> / -] 0: Ott, 1: On			
012	Jam/Door Open Call	[0 or 1 / 1 / -] 0: Off, 1: On			

5801	[Memory Clear] Before executing any of these SP codes, print an SMC Report.				
	All Clear				
001	Initializes items SP5801-002 to -014 below.				
	Turn the main power switch off and on after executing this SP.				
000	SCS	-	-		
003	Clears the system settings.				
004	ІМН	-	-		
	Clears IMH data. <b>DFU</b>				
005	MCS	-	-		
	Clears MCS data. DFU				

	Copier	-	-		
008	Clears the copy application settings.				
	Fax	-	-		
007	Clears the fax application s	ettings.			
000	Printer	-	-		
008	Clears the printer application	on settings.			
000	Scanner	-	-		
009	Clears the scanner applicat	ion settings			
	GWWS/NFA	-	-		
010	Delete the netfile application ID.	n managem	ent files and thumbnails, and initializes the job login		
	NCS	-	-		
011	Initializes the system default and interface settings (IP address also), SmartNetMonitor for Admin, WebImageMonitor settings, and the TELNET settings.				
	The name of Apple talk is not cleared only if this SP is executed. Turns off and on after executing this SP.				
	R-FAX	-	-		
012	Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers.				
014	Clear DCS Setting	-	-		
014	Initializes the DCS (Delivery Control Service) settings.				
015	Clear UCS Setting	-	-		
015	Initializes the UCS (User Information Control Service) settings.				
<u></u>	MIRS Setting	-	-		
010	Initializes the MIRS (Machine Information Report Service) settings.				
017	CCS	-	-		
	Initializes the CCS (Certifico	ition and C	harge-control Service) settings.		

018	SRM Memory Clr	-	-
	Initializes the SRM (System Resource Manager) settings.		
019	LCS	-	-
	Initializes the LCS (Log Count Service) settings.		

5802	Machine Free Run	[0 or 1 / <b>0</b> / - ] 0: No, 1: Yes
5802 1	Conducts machine free run Press "��" key again to star normally even "��" key is p	including the scanner unit). Set "1" and then press "⑧" key. rt "Free Run". When this SP is set to "0", the machine operates pressed.

5803	Input Check
	<ul><li>"Input Check" in this chapter.</li></ul>

5804	Output Check
	<ul><li>"Output Check" in this chapter.</li></ul>

5807*	Area Selection
	Selects the display language.
5807 1	2 North America, 3 Europe, 5 Asia, 6 China
	SP5-807-001 is not cleared by SP5-801-002.
	<b>NOTE:</b> SC982 is displayed if you specify a language that is inconsistent with your local model.

5811*	Machine No. Setting
58111	<ul><li>"Machine No. Setting " in this section.</li></ul>

5812	Service TEL		
	Telephone	CTL	-
001	Sets the telephone number f Counter List, which can be p This can be up to 20 charac	or a service printed with ters (both r	e representative. This number is printed on the the user's "Counter" menu. numbers and alphabetic characters can be input).

002	Facsimile	CTL	-	
	Sets the fax or telephone number for a service representative. This number is printed on the Counter List.			
	This can be up to 20 charac	cters (both r	numbers and alphabetic characters can be input).	
	Supply	CTL	-	
003	Use this to input the telephone number of your supplier for consumables. Enter the number and press"StringIn" key.			
	Press the "Clear modes" key to delete the telephone number.			
004	Sales	CTL	-	
	Use this to input the telephone number of your sales agency. Enter the number and press #.			
	Press the "Clear modes" key	y to delete t	the telephone number.	

5816	[NRS Function]	CTL	-
001	I/F Setting	Selects the remote service setting. [ 0 to 2 / 2 / 1 /step] 0: Remote service off 1: CSS remote service on 2: @Remote service on	
002	CE Call	Performs the CE Call at the start or end of the service. [0 or 1 / 0 / 1 /step] 0: Start of the service, 1: End of the service ♥ Note • This SP is activated only when SP 5816-001 is set to "2".	
003	Function Flag	Enables o [0 or 1 / 0: Disable	r disables the remote service function. <b>0</b> / 1 /step] ed, 1: Enabled
007	SSL Disable	Uses or de calling the [0 or 1 /	oes not use the RCG certification by SSL when e RCG. 0 / 1 /step]

		0: Uses the RCG certification	
		Specifies the connect timeout interval when calling the RCG	
008	RCG Connect Timeout	[1 to $90 / 10 / 1$ second/step]	
009	RCG Write Timeout	Specifies the write timeout interval when calling the RCG.	
		[1 to 100 / <b>60</b> / 1 second/step]	
010	RCG Read Timeout	Specifies the read timeout interval when calling the RCG. [1 to 100 / <b>60</b> / 1 second/step]	
		Enables/disables access via port 80 to the SOAP method.	
011	Port 80	[0  or  1/0/-]	
	с	U: Disablea, T: Enablea	
	Function Flag		
021	This SP displays the embedded RCG installation end flag.		
	1 : Installation completed		
Install Status			
	This SP displays the RCG de	evice installation status.	
022	0: RCG device not registered		
	1: RCG device registered		
	2: Device registered		
	Connect Mode (N/M)		
023	This SP displays and selects the embedded RCG connection method.		
020	0: Internet connection		
	1: Dial-up connection		
041	NotiTime ExpTime <b>DFU</b>		
001	Proximity of the expiration of the certification.		
	HTTP Proxy Use		
062	This SP setting determines if the service center.	the proxy server is used when the machine communicates with	

063	HTTP Proxy Host		
	This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N.		
	<ul> <li>The address display is limited to 127 characters. Characters beyond the 127th character are ignored.</li> </ul>		
	• This address is customer information and is not printed in the SMC report.		
	HTTP Proxy Port Number		
064	This SP sets the port number of the proxy server used for communication between embedded RCG N and the gateway. This setting is necessary to set up embedded RCG-N.		
	• This port number is customer information and is not printed in the SMC report.		
	HTTP Proxy Aut Usr		
	This SP sets the HTTP proxy authentication user name.		
065	Note		
005	• The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.		
	• This name is customer information and is not printed in the SMC report.		
	HTTP Proxy Aut Pass		
	This SP sets the HTTP proxy authentication password.		
066	♦ Note		
	• The length of the password is limited to 31 characters. Any character beyond the 31st character is ignored.		
	• This name is customer information and is not printed in the SMC report.		
	Cer Updt Cond		
067	Displays the status of the certification update.		
	0 The certification used by embedded RCG is set correctly.		
	The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.		

	2	The certification update is completed and the GW URL is being notified of the successful update.	
	3	The certification update failed, and the GW URL is being notified of the failed update.	
	4	The period of the certification has expired and a new request for an update is being sent to the GW URL.	
	11	A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.	
	12	The rescue certification setting is completed and the GW URL is being notified of the certification update request.	
	13	The notification of the request for certification update has been completed successfully, and the system is waiting for the certification update request from the rescue GW URL	
	14	The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.	
	15	The certification has been stored, and the GW URL is being notified of the successful completion of this event.	
	16	The storing of the certification has failed, and the GW URL is being notified of the failure of this event.	
	17	The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but a certification error has been received, and the rescue certification is being recorded.	
	18	The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.	
	Cer Abnml Cause		
	Displays a number code that describes the reason for the request for update of the certification.		
	0	Normal. There is no request for certification update in progress.	
068	1	Request for certification update in progress. The current certification has expired.	
	2	An SSL error notification has been issued (after the certification has expired).	
	3	Notification of shift from a common authentication to an individual certification.	
	4	Notification of a common certification without ID2.	

	5	5 Notification that no certification was issued.			
	6 Notification that GW URL does not exist.				
060	Cert: Updtt ReqID				
009	The ID of the request for certification.				
082	Firm Updating				
Displays the status of the firmware update.		ays the status of the firmware update.			
0.9.4	Firm U	JpFlg No HDD			
004	This s	etting determines if the firmware can be updated, even without the HDD installed.			
	Firm U	Jp Usr Conf			
085	This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL.				
	Firmv	vare Size			
086	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.				
007	CERT	: Macro Version			
087	Displ	ays the macro version of the @Remote certification.			
CERT: PAC Version		: PAC Version			
000	Displ	ays the PAC version of the @Remote certification.			
	CERT	: ID2 Code			
089	Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asterisks (*) indicate that no @Remote certification exists.				
	CERT	: Subject			
090	Disple bytes	ays the common name of the @Remote certification subject. CN = the following 17 . Spaces are displayed as underscores (_). Asterisks (*) indicate that no DESS exists.			
091	CERT	: Serial Number			

	Displays serial number for the @Remote certification. Asterisks (*) indicate that no DESS exists.		
092	CERT: Issuer		
	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asterisks (*) indicate that no DESS exists.		
002	CERT: St ExpTime		
093	Displays the start time of the period for which the current @Remote certification is enabled.		
004	CERT: End ExpTime		
094	Displays the end time of the period for which the current @Remote certification is enabled.		
	Ins Country		
	Select from the list the name of the country where embedded RCG-M is installed in the machine. After selecting the country, you must also set the following SP codes for embedded RCG-M:		
150	• SP5816-153		
	• SP5816-154		
	• SP5816-161		
	0: Japan, 1: USA, 2: Canada, 3: UK, 4: Germany, 5: France		
	o: Iraly, 7: Nemerianas, 6: Belgium, 7: Luxembourg, 10: Spain		
	Aut Line Detect		
	Press [Execute].		
151	Setting this SP classifies the telephone line where embedded RCG-M is connected as either dial-up or push type, so embedded RCG-M can automatically distinguish the number that connects to the outside line.		
	• The current progress, success, or failure of this execution can be displayed with SP5816 152.		
	<ul> <li>If the execution succeeded, SP5816 153 will display the result for confirmation and SP5816 154 will display the telephone number for the connection to the outside line.</li> </ul>		
	Line Detect Rst		
152	Displays a number to show the result of the execution of SP5816151. Here is a list of what the numbers mean.		
	0: Success		

	1: In progress (no result yet). Please wait.			
	2: Line abnormal			
	3: Cannot detect dial tone automatically			
	4: Line is disconnected			
	5: Insufficient electrical power supply			
	6: Line classification not supported			
	7: Error because fax transmission in progress – ioctl() occurred.			
	8: Other error occurred			
	9: Line classification still in progress. Please wait.			
	Dial/Push Select			
	This SP displays the classification (tone or pulse) of the telephone line to the access point for embedded RCG-M. The number displayed (0 or 1) is the result of the execution of SP5816 151. However, this setting can also be changed manually.			
	[0 to 1 / <b>0</b> / 1 /step]			
153	0: Tone Dialing Phone			
	1: Pulse Dialing Phone			
	Inside Japan "2" may also be displayed:			
	0: Tone Dialing Phone			
	1: Pulse Dialing Phone 10PPS			
	2: Pulse Dialing Phone 20PPS			
	Outline Phone #			
	The SP sets the number that switches to PSTN for the outside connection for embedded RCG-M in a system that employs a PBX (internal line).			
154	<ul> <li>If the execution of SP5816-151 has succeeded and embedded RCG-M has connected to the <b>external</b> line, this SP display is completely blank.</li> </ul>			
134	<ul> <li>If embedded RCG-M has connected to an internal line, then the number of the connection to the external line is displayed.</li> </ul>			
	<ul> <li>If embedded RCG-M has connected to an external line, a comma is displayed with the number. The comma is inserted for a 2 sec. pause.</li> </ul>			
	• The number setting for the external line can be entered manually (including commas).			
155	Remove Service: PPP Recognition Timeout			

	<ul> <li>SSP: Sets the length of the timeout for the embedded RCG-M connection to its access point. The timeout is the time from when the modem sends the ATD to when it receives the result code.</li> <li>[1 to 65536 / 60 / 1 / step]</li> </ul>		
	Dial Up User		
156	Use this SP to set a user name for access to remote dial up. Follow these rules when setting a user name: • Name length: Up to 32 characters • Spaces and # allowed but the entire entry must be enclosed by double quotation		
	marks (").		
	Dial Up Password		
157	Use this SP to set a password for access to remote dial up. Follow these rules when setting a user name:		
	Name length: Up to 32 characters		
	<ul> <li>Spaces and # allowed but the entire entry must be enclosed by double quotation marks (").</li> </ul>		
	Phone Number		
161	Use this SP to set the telephone number of the line where embedded RCG-M is connected. This number is transmitted to and used by the Call Center to return calls.		
	Limit: 24 numbers (numbers only)		
	Ans Timing Adj		
162	When the Call Center calls out to a embedded RCG-M modem, it sends a repeating ID tone (*#1#). This SP sets the time the line remains open to send these ID tones after the number of the embedded RCG-M modem is dialed up and connected.		
	[0  to  24/1/1/step]		
	remain open for 4 sec.		
	Access Point		
163	This is the number of the dial-up access point for embedded RCG-M. If no setting is done for this SP code, then a preset value (determined by the country selected) is used. Default: 0		
	Allowed: Up to 16 alphanumeric characters		

	Comm Line			
	This SP sets the connection conditions for the customer. This setting dedicates the line to embedded RCG-M only, or sets the line for sharing between embedded RCG-M and a fax unit.			
	[0 or 1 / <b>0</b> / - ]			
164	0: Line shared by embedded RCG-M/Fax			
	1: Line dedicated to embedded RCG-M only			
	↓ Note			
	• If this setting is changed, the copier must be cycled off and on.			
	• SP5816 187 determines whether the off-hook button can be used to interrupt an embedded RCG-M transmission in progress to open the line for fax transaction.			
170	Modem Serial Number			
1/3	This SP displays the serial number registered for the embedded RCG-M.			
174	Lmt Resend Cncl			
	Normally, it is best to allow unlimited time for certification and ID2 update requests, and for the notification that the certification has been completed. However, embedded RCG-M generates charges based on transmission time for the customer, so a limit is placed upon the time allowed for these transactions.			
	If these transactions cannot be completed within the allowed time, do this SP to cancel the time restriction.			
	FAX TX Priority			
	This SP determines whether pushing the off-hook button will interrupt an embedded RCG- M transmission in progress to open the line for fax transaction. This SP can be used only if SP5816-164 is set to "0".			
	[0 or 1/0/-]			
187	O: Disable. Setting the fax unit off-hook does not interrupt a fax transaction in progress. If the off-hook button is pushed during a embedded RCG-M transmission, the button must be pushed again to set the fax unit on-hook after the embedded RCG-M transmission has completed.			
	1: Enable. When embedded RCG-M shares a line with a fax unit, setting the fax unit off- hook will interrupt a embedded RCG-M transmission in progress and open the line for a fax transaction.			
200	Polling Man Exc			

	Executes the polling test.		
	Instl: Condition		
201	Displays a number that indicates the status of the @Remote service device.		
	0: Neither the registered device by the external RCG nor embedded RCG device is set.		
	1 : The embedded RCG device is being set. Only Box registration is completed. In this status the this unit cannot answer a polling request from the external RCG.		
	2: The embedded RCG device is set. In this status the external RCG unit cannot answer a polling request.		
	3: The registered device by the external RCG is being set. In this status the embedded RCG device cannot be set.		
	4: The registered module by the external RCG has not started.		
202	Instl: ID#		
202	Allows entry of the number of the request needed for the embedded RCG.		
203	Instl: Reference		
203	Executes the inquiry request to the @Remote GateWay URL.		
	Instl: Ref Rslt		
	Displays a number that indicates the result of the inquiry executed with SP5816-203.		
	0: Succeeded		
	1 : Inquiry number error		
	2: Registration in progress		
204	3: Proxy error (proxy enabled)		
	4: Proxy error (proxy disabled)		
	5: Proxy error (Illegal user name or password)		
	6: Communication error		
	7: Certification update error		
	8: Other error		
	9: Inquiry executing		
	Instl: Ref Section		
205	Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.		

204	Instl: Rgstltn					
200	Executes Embedded RCG Registration.					
	Instl: Rgstltn Rst					
	Displays a number that indicates the registration result.					
	2: Pogistration in progress					
	3: Proxy error (proxy	enabled)				
207	4: Proxy error (proxy	disabled)				
	5: Proxy error (Illega	, I user name	e or password)			
	6: Communication er	ror				
	7: Certification upda	te error				
	8: Other error					
	9: Registration executing					
	Instl Error Code					
	Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed.					
	Cause	Code	Meaning			
	Illegal Modem Parameter	-11001	Chat parameter error			
		-11002	Chat execution error			
		-11003	Unexpected error			
208	Operation Error, Incorrect Setting	-12002	Inquiry, registration attempted without acquiring devic status.			
		-12003	Attempted registration without execution of an inquiry and no previous registration.			
		-12004	Attempted setting with illegal entries for certification and ID2.			
	Error Caused by Response from GW	-2385	Attempted dial up overseas without the correct international prefix for the telephone number.			
		-2387	Not supported at the Service Center			
		-2389	Database out of service			



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		-2390	Program out of service		
		-2391	Two registrations for same device		
		-2392	Parameter error		
		-2393	External RCG not managed		
		-2394	Device not managed		
		-2395	Box ID for external RCG is illegal		
		-2396	Device ID for external RCG is illegal Incorrect ID2 format		
		-2397			
		-2398	Incorrect request number format		
200	Instl Clear				
209	Releases a machine from its embedded RCG setup.				
250	Print Com Log				
	Prints the communication log.				

5821	NRS Address			
001	CSS-PI Device	Sets the PI device code. After you change this setting, you must turn the machine off and on.		
002	RCG IP Address	Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center. [00000000h to FFFFFFFh / 1 /step]		

5824 NVRAM Upload	
5824 1 • "NVRAM Upload/Download" in this section.	

5825	NVRAM Download	
5825 1	<ul> <li>"NVRAM Upload/Download" in this section.</li> </ul>	

5828	Network Setting	CTL		
050	1284 Compatibility (Centro)	Enables or disables 1284 Compatibility. [0 or 1 / 1 / 1 / step] 0: Disabled, 1: Enabled		
052	ECP (Centro)	Enables or disables ECP Compatibility. [0 or 1 / 1 / 1 / step] 0: Disabled, 1: Enabled <b>NOTE:</b> This SP is activated only when SP5-828-50 is set to "1".		
065	Job Spooling	Enables/disables Job Spooling. [0 or 1 / <b>0</b> / 1 / step] 0: Disabled, 1: Enabled		
066	Job Spooling Clear: Start Time	Treatment of the job when a spooled job exists at power on. 0: ON (Data is cleared) 1: OFF (Automatically printed)		
069	Job Spooling (Protocol)	Validates or invalidates the job spooling function for each protocol. <b>0</b> : Validates 1: Invalidates bit0: LPR bit1: FTP bit2: IPP bit3: SMB bit4: BMLinkS bit5: DIPRINT bit6: (Reserved) bit7: (Reserved)		
090	O90TELNET (0: OFF 1: ON)Enables or disables the Telnet protocol.090TELNET (0: OFF 1: ON)[ 0 or 1 / 1 / - ]0: Disable, 1: Enable			

5828	Network Setting	CTL		
		Enables or disables the Web operation.		
091	Web (0: OFF 1: ON)	[ 0 or 1 / 1 / - ]		
		0: Disable	, 1: Enable	
	Active IPv6 Link			
145	This is the IPv6 local address link referenced on the Ethernet or wireless LAN (802.11b) in the format:			
	"Link Local Address" + "Prefix Length"			
	The IPv6 address consists of a total of 128 bits configured in 8 blocks of 16 bits each.			
147	Active IPv6 Status Address 1			
149	Active IPv6 Status Address 2	These SPs are the IPv6 status addresses (1 to 5) reference on the Ethernet or wireless LAN (802.11b) in the format "Status Address" + "Prefix Length" The IPv6 address consists of a total of 128 bits configu- in 8 blocks of 16 bits each.		
151	Active IPv6 Status Address 3			
153	Active IPv6 Status Address 4			
155	Active IPv6 Status Address 5			
	IPv6 Manual Setting Address			
156	This SP is the IPv6 manually set address referenced on Ethernet or wireless LAN (802.11b) in the format:			
	"Manual Set Address" + "Prefix Length"			
	The IPv6 address consists of a total of 128 bits configured in 8 blocks of 16 bits each.			
	IPv6 Gateway Address			
158	This SP is the IPv6 gateway address referenced on Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total of 128 bits configured in 8 blocks of 16 bits each.			

5840	IEEE 802.11b			
006	Channel MAX CTL		[1 to 11 or 13 / <b>11</b> or <b>13</b> / 1 /step] Europe: 1 to 13, default: 13 NA/ Asia: 1 to 11, default: 11	
	Sets the maximum number of channels available for data transmission via wireless LAN. The number of channels available varies according to location. The default settings are set			

	for the maximum end of the range for each area. Adjust the upper 4 bits to set the maximum number of channels. <b>DFU</b>			
	♦ Note			
	• Do not change the setting.			
		CTL	[ 1 to 11 or 13 / <b>1</b> / 1 /step]	
	Channel MIN		Europe: 1 to 13	
			NA/ Asia: 1 to 11	
007	<ul> <li>Sets the minimum number of channels available for data transmission via the wireless LAN.</li> <li>The number of channels available varies according to location. The default settings are set for the minimum end of the range for each area. Adjust the lower 4 bits to set the minimum number of channels. DFU</li> <li>Note</li> <li>Do not change the setting.</li> </ul>			
011	WEP Key Select	CTL	[00 to 11 / 00 / 1 binary] 00: Key #1 01: Key #2 (Reserved) 10: Key #3 (Reserved) 11: Key #4 (Reserved)	
	Selects the WEP key.			

5842	GWWS Analysis <b>DFU</b>			
001	Setting 1	CTL		
	This is a debugging tool. It sets the debugging output mode of each Net File process. Default: Bit SW 1000 0000	Bit	Groups	
		0	System & other groups (LSB)	
		1	Capture related	
		2	Certification related	
		3	Address book related	
		4	Machine management related	
		5	Output related (printing, delivery)	
		6	Repository related	

		7	Debug log output
002	Setting 2	CTL	
	Default: Bit SW 0000 0000	Bit	Groups
		0-6	Not used
		7	Log time stamp setting 0: Date/Hour/Minute/Second 1: Minute/Second/Msecond

5844	USB			
	Transfer Rate	CTL		
001	Sets the speed for USB data transmission.			
	[Full Speed]			
	[Auto Change]			
	Vendor ID	CTL		
002	Sets the vendor ID:			
	Initial Setting: 0x05A Ricoh Company			
	[0x0000 to 0xFFFF/1] <b>DFU</b>			
	Product ID	CTL		
003	Sets the product ID.			
	[0x0000 to 0xFFFF/1] <b>DFU</b>			
	Device Release No.	CTL		
	Sets the device release number of the BCD (binary coded decimal) display.			
004	[0000 to 9999/1] <b>DFU</b>			
	Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.			

5945	Delivery Server Setting	CTL	-	
3643	Provides items for delivery server settings.			
001	FTP Port Num	[ 0 to	65535 / <b>3670</b> / 1 /step]	

	Sets the FTP port number used when image files to the Scan Router Server.				
	Srv IP (Primary)	Range: 000.000.000 to 255.255.255.255			
002	Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be referenced by the initial system setting.				
	Retry Interval	[60 to 999 / <b>300</b> / 1 second /step]			
003	Specifies the interval time for sending the scanned image data to the deliver server or SMTP/FTP/NCP/SMB server after sending error.				
	Number of Retries	[0 to 99 / <b>3</b> / 1 time/step]			
004	Specifies the retry times for sending the scanned image data to the deliver server or SMTP/ FTP/NCP/SMB server after sending error.				
	Delivery Error Display Time	[0 to 999 / <b>300</b> / 1 second /step]			
006	006 Use this setting to determine the length of time the prompt message is displayed test error occurs during document transfer with the NetFile application and an edevice.				
	Srv IP (Secondary)	Range: 000.000.000 to 255.255.255.255			
008	Specifies the IP address assigned to the computer designated to function as the secondary delivery server of Scan Router. This SP allows only the setting of the IP address without reference to the DNS setting.				
	Delivery Server Model	[0 to 4 / 0 / 1 /step]			
009	Allows changing the model of the delivery server registered by the I/O device.				
	0: Unknown, 1: SG1 Provided, 2: SG1 Package,				
	3: SG2 Provided, 4: SG2 Package				
	Delivery Svr Capability	[0 to 255 / <b>0</b> / 1 /step]			
	Bit7 = 1 Comment information exits		_		
010	Bit6 = 1 Direct specification of mail address possible		Changes the capability of the server that is registered as an I/O device.		
	Bit5 = 1 Mail RX confirmation setting possible				
	Bit4 = 1 Address book automatic update function exists				
	Bit3 = 1 Fax RX delivery function exists				
	Bit2 = 1 Sender password function exists				
	Bit1 = 1 Function to link MK-1 user and Sender exists				
-----	--	--------------------------------	---------------	--	--
	BitO = 1 Sender specification required (if set to 1, Bit6 is set to "O")				
	Delivery Svr Capability (Ext)	[ 0 to 255 / <b>0</b> / 1 /ste	ep]		
	Changes the capability of the serv	er that is registered as a	n I/O device.		
011	Bit7 = 1 Address book usage limitation (Limitation for each authorized user) Bit6 = 1 RDH authorization link Bit5 to 0: Not used				
	Svr Schm (Primary)	-			
013	Specifies the scheme of the primar	y delivery server.			
014	Svr Port Num (Pri)	-			
014	Specifies the port number of the pr	rimary delivery server.			
015	Srv URL Path (Pri)	-			
015	Specifies the URL path of the primary delivery server.				
016	Svr Schm (Sec)	-			
010	Specifies the scheme of the secondary delivery server.				
017	Svr Port Num (Sec)	-			
	Specifies the port number of the secondary delivery server.				
018	Srv URL Path (Sec)	-			
010	Specifies the URL path of the secondary delivery server.				
010	CapSvr Schm	-			
017	Specifies the scheme of the capture server.				
020	CapSvr Port Num	-			
020	Specifies the port number of the co	apture server.			
021	CapSrv URL Path	-			
021	Specifies the URL path of the s capture server.				

022	Rapid-fire Send	[ 0 or 1 / 1 / - ] 0: Disable, 1: Enable	
	Enables or disables the prevention function for the continuous data sending.		

5944	UCS Settings	CTL		
3840	Provides items for delivery se	erver	settings.	
	Machine ID (Delivery Serve	·)	Displays ID	
001	Displays the unique device I displayed and cannot be ch EUI. The ID is displayed as e	D in u ange ither	use by the delivery server directory. The value is only d. This ID is created from the NIC MAC or IEEE 1394 6-byle or 8-byte binary.	
	Machine ID Clear (Delivery Server)	(	Clears ID	
002	Clears the unique ID of the o this SP if the connection of the ID, the ID will be established	evice e dev agai	e used as the name in the file transfer directory. Execute vice to the delivery server is unstable. After clearing the in automatically by cycling the machine off and on.	
	Maximum Entries		[150 to 999 / <b>150</b> / 1 /step]	
003	Changes the maximum number of entries that UCS can handle. If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.			
	Delivery Server Retry Timer		[0 to 255 / <b>0</b> / 1 /step]	
006	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book.			
	Delivery Server Retry Times		[0 to 255 / <b>0</b> / 1 /step]	
007	O07 Sets the number of retry attempts when the delivery server fails to acquire the deli address book.		hen the delivery server fails to acquire the delivery server	
008	Delivery Server Maximum Entries		[200 to 999 / <b>200</b> / 1/step]	
	Sets the maximum number account entries of the delivery server user information managed by UCS.			
010	LDAP Search Timeout		[1 to 255 / <b>60</b> / 1 /step]	

	Sets the length of the timeout for the search of the LDAP server.			
	[AddrB Acl Info] Address Book Access Control List Information This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users.			
041				
		[0 to 10 / 0 / 1 /step]		
	Addr B Mig (SD $\rightarrow$ SD)	0: Not decided yet		
		1: Slot 1 to 10: Slot 10		
042	This SP copies an address book	data in a SD card to another SD card.		
	Select the destination slot where you want to move an address book data, and then press "Execute" key.			
	You can check where an address book data is in with SP5-846-043.			
0.40	Addr B Media			
043	Displays the slot number where	an address book data is in.		
047	Initialize Local Addr Book Clears the local address book information, includin user code.			
048	Initialize Delivery Addr Book	Clears the distribution address book information, except the user code.		
049	Initialize LDAP Addr Book	Clears the LDAP address book information, except the user code.		
0.50		Clears all directory information managed by UCS, including all user codes.		
030	iniidiize Ali Addi Book	Turn the main power switch off and on after executing this SP.		
051	Backup All Addr Book	Uploads all directory information to the SD card.		
052	Restore All Addr Book	Downloads all directory information from the SD card.		
053	Clear Backup Info	Deletes the address book data from the SD card in the service slot.		

		Deletes only the files that were uploaded from this machine.
		This feature does not work if the card is write-protected.
		<b>Note:</b> After you do this SP, go out of the SP mode, and then turn the power off. Do not remove the SD card until the Power LED stops flashing.
		This SP uses bit switches to set up the fuzzy search options for the UCS local address book.
060	Search Option	Bit0: Checks both upper/lower case characters
		Bit1: Japan only
		Bit2 to 7: Not used
062	Compl Opt1 <sup>(1)</sup>	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password.
		[0 to 32 / 0 / 1 /step]
063	Compl Opt2 <sup>(1)</sup>	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to lower case and defines the length of the password.
064	Compl Opt3 <sup>(1)</sup>	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to numbers and defines the length of the password.
		[0 to 32 / 0 / 1 / step]
065	Compl Opt4 <sup>(1)</sup>	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to symbols and defines the length of the password. [0 to 32 / 0 / 1 /step]
		Specifies the ETP part for gotting a distribution server
091	FTP Auth Port Setting	address book that is used in the identification mode.

094	Encryption Stat	Shows the status of the encryption function for the address book data.
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### Note <sup>(1)</sup>:

SP5846-062 to SP5846-065 do not normally require adjustment.

These SP modes are enabled only after the system administrator has set up a group password policy to control access to the address book.

	Web Service	CTL	-		
5848	SP5848-1 sets the 4-bit switch assignment for the access control setting. Setting of 0001 has no effect on access and delivery from Scan Router. ac: Access Control				
001	ac: Netfile (only Lower 4 bits)				
004	ac: UD (only Lower 4 bits)	-			
005	ac: For Cherry (only Lower 4 bits)	Switche	es access control on and off.		
007	ac: Log Fax (Lower 4 bits)	0000:	No access control		
009	ac: Job Ctrl (Lower 4 bits)	0001: Denies access to DeskTop Binder.			
011	ac: Device Management (Lower 4 bits)	~			
022	ac: Uadmin (Lower 4bits)				
210	Log Type: Job 1				
211	Log Type: Job2				
212	Log Type: Access	Display	vs the log server settings.		
213	Primary Srv	These of	can be adjusted with the Web Image Monitor.		
214	Secondary Srv				
215	Start Time				
216	Interval Time	Specifi [1 to 1 This SP (Transn	es the transmit interval. 000 / 1 / 1 hour/step] is activated only when SP5848-217 is set to "2 nit periodically)".		

217	Timing	Selects the transmit timing.	
		[0 to 2 / <b>0</b> / 1/step]	
		0: No Transmit, 1: Transmit one by one	
		2: Transmit periodically	

5940	Installation Date	e	CTL	
5649	Displays or prints the installation date of the machine.			
001	Display	The "Counter Clear Day" has been changed to "Installation Date" or "Inst. Date".		
002	Print	Determines whether the installation date is printed on the printout for the total counter. [0 or 1/1/1/step] 0: Off (No Print), 1: On (Print)		
003	Total Counter	Displays the total counter when the installation date is registered to the machine.		

5851	Bluetooth		
001	Mode	CTL	Sets the operation mode for the Bluetooth Unit. Press either key. <b>0</b> :Public, 1: Private

	Remote ROM Update		
5856	5856 Allows the technician to upgrade the firmware using a parallel cable when upder remote ROM.		
002	Local Port	CTL	[0 or 1 / 0 / 1/step] 0: Disallow
			1: Allow

5857	Debug Log Save	CTL	-
	ON/OFF	0: OFF,	1: ON
001	Switches the debug log feature on and off. The debug log cannot be captured until this feature is switched on.		

006	Save to SD Card
000	Specifies the debug log number for saving to an SD card.
	Erase SD Debug
012	Erases SD debug logs in the SD card.
	Turn off and on after executing this SP.
013	Dsply-SD Space
013	Displays the remaining space in the SD card.
	SD to SD Latest (Latest 4 MB)
014	Saves the debug log (latest 4 MB) in memory to the SD card.
014	A unique file name is generated to avoid overwriting existing file names on the SD card. Up to 4MB can be copied to the SD card. 4 MB segments can be copied one by one to the SD card.
	SD to SD Any (Latest 4 MB Any Key)
015	Saves the specified debug log (with SP5-857-006) in memory to the SD card. A unique file name is generated to avoid overwriting existing file names on the SD card. Up to 4MB can be copied to the SD card. 4 MB segments can be copied one by one to
	the SD card.
017	Make SD Debug
017	Executes the making of a file (4MB) for saving debug logs.

	Debug Log Save: SC	CTL	-		
5858	gging information to be saved to the destination umber. Refer to the chapter "Trouble Shooting" for				
001	Engine SC	Turns the save function on/off for SC codes generated by copier engine errors. [0 or 1 / <b>0</b> / 1/ step] 0: OFF, 1: ON			
002	Controller SC	Turns the GW cont	save function on/off for SC codes generated by roller errors.		

		[0 or 1 / <b>0</b> / 1/ step]
		0: OFF, 1: ON
003	Any SC	[0 to 65535 / <b>0</b> / 1 /step]
		Turns the save function on/off for jam errors.
004	Jam	[0 or 1 / <b>0</b> / 1 / step]
		0: OFF, 1: ON

5859	Debug Log Save Key	CTL	-		
001	Key 1				
002	Key 2				
003	Key 3				
004	Key 4	•			
005	Key 5	These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller boar [ –9999999 to 9999999 / <b>0</b> / – ]			
006	Key 6				
007	Key 7				
008	Key 8				
009	Key 9				
010	Кеу 10				

5860	SMTP/POP3/IMAP4	CTL	-		
	Partial Mail Receive Timeout			[1 to 168 / <b>72</b> / 1 hour/step]	
020	Sets the amount of time to wait before saving mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time.				
	MDN Response RFC2298 Compliance			[0 to 1 / 1 / - ]	
021	Determines whether RFC2298 compliance is switched on for MDN reply mail. 0: No, 1: Yes				
022	SMTP Auth. From Field Replacement		[0 to 1 / <b>0</b> / – ]		

	Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.				
	0: No. "From" item not switched. 1: Yes. "From" item switched.				
	SMTP Auth. Direct Setting [0 or 1 / 0 / -]				
	Selects the authentication method for SMPT.				
	Bit switch:				
	Bit 0: LOGIN				
025	Bit 1: PLAIN				
020	Bit 2: CRAM MD5				
	Bit 3: DIGEST MD5				
	• Bit 4 to 7: Not used				
	♦ Note				
	• This SP is activated only when SMTP authorization is enabled by UP mode.				

5866	E-mail Report			
001	Report Validity Enables or disables the E-mail	- alert fund	[ 0 or 1 / <b>0</b> / – ] 0: Enabled, 1: Disabled ction.	
005	Add Date Field	CTL	[ 0 or 1 / <b>0</b> / – ] 0: Not add, 1: Add	
	Adds or does not add the date field to the header of the alert mail.			

5869	RAM Disk Setting				
001	Mail Function	GWINIT	[0 or 1 / <b>0</b> / - ] 0: ON, 1: OFF		
	Turns on or off the e-mail function.				
000	PDL Storage	GWINIT	[0 to 255 / <b>4</b> / 1 /step]		
002	Specifies the RAM disk storage size for PDL.				
5070					

5870 Common Key Info Writing

001	Writing	CTL	Writes to flash ROM the common proof for validating the device for @Remote specifications.
003	Initialize	CTL	Formats the common proof area of the flash ROM. <b>FA</b>

5873	SD Card Appli Move	
001	Move Exec	This SP copies the application programs from the original SD card in SD card slot 3 to an SD card in SD card slot 2.
002	Undo Exec	This SP copies back the application programs from an SD card in the SD Card Slot 3 to the original SD card in the SD card slot 2. Use this menu when you have mistakenly copied some programs by using "Move Exec" (SP5873-1).

5875	SC Auto Reboot		
001	Reboot Mode	CTL	Enables or disables the automatic reboot function when an SC error occurs. [0 or 1 / 0 / -] 0: The machine reboots automatically when the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot. 1: The machine does not reboot when an SC error occurs. The reboot is not executed for Type A, B or C SC codes.
002	Reboot Method	CTL	Selects the reboot method for SC. [0 or 1 / <b>0</b> / -] 0: Manual reboot, 1: Automatic reboot

5878	Option Setup		
001	Option Setup	-	Enables the Data Overwrite Security unit. Press "EXECUTE" on the operation panel. Then turn the machine off and on.

5881	Delete Fixed Sent		
001	Delete Fixed Sent	-	Deletes the fixed form sentence.

5886	Permit ROM Update <b>DFU</b>
001	This SP determines whether the ROM can be updated.
001	0: Yes, 1: No

5887	SD GetCounter <b>SSP</b>
001	This SP saves the counter list of the machine to an SD card in the slot 3.
	The folder of "SD_COUNTER" must be made in an SD card for this SP.

5902	Test Pattern Print
5902 1	

Selects the brand name and production name for the Plug and Play function. These name are stored in the NVRAM. When the NVRAM data is corrupted, select these names onc again. Use the right-arrow or left-arrow key to scroll through the list of brand names. To select a brand name, press the OK key. An asterisk (*) indicates which manufacture is currently selected.

5912*	PCU Alarm Counter (Printout)	[0 to 255 / 45 / 1/step]	
Specifies the PCU alarm level. The PCU alarm is issued when the met:		PCU alarm is issued when the following condition is	
59121	PAc x 1000 >= PCUc		
	where PAc is the value specified in this SP and PCUc is the PCU counter. When you specify 0 (zero), the PCU alarm is deactivated.		

5913	Switch Permission
002	Print Application Timer

Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed.
[3 to 30 / <b>3</b> / 1 second/step]

5974	Cherry Server
001	Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed.
	[0 to 1 / <b>0</b> / 1 /step] 0: Light version (supplied with this machine)
	1: Full version (optional)

	Device Setting	
5985	The NIC and USB support features are built into the GW controller. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1".	
001		[0 to 2 / <b>0</b> / 1 /step]
	On Board NIC	0: OFF, 1: ON, 2: ON: Limited
		When the "Function limitation" is set, "On board NIC" is limited only for the @Remote or LDAP/NT authentication.
		♦ Note
		<ul> <li>Other network applications than @Remote or LDAP/NT authentication are not available when this SP is set to "2". Even if you can change the initial settings of those network applications, settings may not actually work.</li> </ul>
002	On Board USB	[0 or 1 / <b>0</b> / 1/step] 0: OFF, 1: ON

5990	SP Print Mode	SMC Print
	In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press "EXECUTE".	
001	All (Data List)	

002	SP (Mode Data List)
003	User Program Data
004	Logging Data
005	Diagnostic Report
006	Non-Default (Prints only SPs set to values other than defaults.)
007	NIB Summary
021	Copier User Program
022	Scanner SP
023	Scanner User Program
5998	Memory Clear
001	See the section "Memory Clear" in this chapter.

# SP6-XXX (Peripherals)

6006*	ADF Adjustment (  "DF Image Adjustment" in the "Adjusting Copy Image Area") NOTE: Available menus depend on the machine model and its configuration.		
6006 1	StoS/Front Regist	[-5.0 to +5.0 / <b>0.0</b> / 0.1 mm/step]	
	Adjusts the side-to-side registration for the front side of the original, for ARDF mode. Use the 🕲 key to select "+" or "-" before entering the value		
	Leading Regist	[-5.0 to +5.0 / <b>0.0</b> / 0.1 mm/step]	
6006 2	Adjusts the leading edge registration for ARDF mode. Use the 🗟 key to select "+" or "-" before entering the value.		
6006 3	Trailing Erase	[-3.0 to +3.0 / <b>-1.5</b> / 0.1 mm/step]	
	Adjusts the trailing edge erase margin for ARDF mode. Use the 🗟 key to select "+" or "-" before entering the value.		
6006 4	S to S/ Rear Regist	[-5.0 to +5.0 / <b>0.0</b> / 0.1 mm/step]	
	Adjusts the side-to-side registration for the 2nd side of the original, for ARDF mode. Use the registration for the entering the value		

6006 5	Sub-scan Magnif	[-0.9 to +0.9 / <b>0.0</b> / 0.1 %/step]
	Adjusts the sub-scan magnification for the ARDF.	
	Origin Curl Adj	[0 = No / 1 = Yes]
6006 6	Turns on or off the skew correction at 2nd side scanning. This SP is activated only when the duplex mode is selected.	
	Skew Correction	[-20 to +20 / <b>0.0</b> / 1 mm/step]
6006 7	Adjusts the original buckle for the skew correction at 2ns side scanning. This SP is activated only when SP6-006-006 is set to "1 (Yes)".	

6009	ADF Free Run	
6009 1	Duplex Mode	
	Performs an ARDF free run in duplex scanning mode. Press "ON" to start; press "OFF" to stop.	
6009 3	Simplex Mode	
	Performs an ARDF free run at simplex scanning mode. Press "ON" to start; press "OFF" to stop.	

6910*	ADF Shading Time	[0 to 60 / <b>30</b> / 1 s/step]
69101	Adjusts the interval used for the the room may affect the scanne the white level is drifting during	e shading processing in the ARDF mode. Light and heat in r response. Reduce this setting if copy quality indicates that ARDF copy jobs.

6930*	ADF Hole Setting	[0 or 1 / 0 / - ] 0: No, 1: Yes
6930 1	Enables or disables the ADF ha When "1: Yes" is selected, the r ARDF.	ole setting. machine prevents feed jams of the punched originals in the

## SP7-XXX (Data Log)

7001*	Total Operation
7001 1	Displays the total operation time (total drum rotation time).

7401*	Counter-SC Total	[0 to 9999 / <b>0</b> / 1/step]
7401 1	Displays how many times SC codes are generated.	

7403*	SC History
7403 1	Displays the histories of the latest 10 SC codes.

7502*	Counter-Paper Jam	[0 to 9999 / <b>0</b> / 1/step]
7502 1	Displays the total number of copy paper jams.	

7503*	Counter–Orgn Jam	[0 to 9999 / <b>0</b> / 1/step]
7503 1	Displays the total number of original jams,	

7504*	Paper Jam/Loc	[0 to 9999 / <b>0</b> / 1/step]	
7504	Displays the total number of the paper jams classified by timing and location.		
750.4.1	At power on		
7504 1	Paper jam occurs at power on.		
750410	Regist NoFeed: OFF		
/ 504 10	Paper does not reach the registration sensor	(from a paper tray).	
750411	1 Vertical SN: OFF		
/304 11	Paper does not reach the relay sensor.		
750410	1 Vertical SN: ON		
730412	Paper is caught at the relay sensor.		
750450	Regist Bypass: OFF		
/504 50	Paper does not reach the registration sensor (from the by-pass tray).		
	Regist Duplex: OFF		
7504 60	Paper does not reach the registration sensor during reverse-side printing (for duplex printing).		
7504 70	Regist SN: ON		

	Paper is caught at the registration sensor.
7504100	1 Exit SN: ON
7304120	Paper is caught at the exit sensor (previous page).
7504 101	Exit SN: OFF
7504121	Paper does not reach the exit sensor.
7504 100	2 Exit SN: ON
7504 122	Paper is caught at the exit sensor.
7504 123	Dup Inverter: OFF
	Paper does not reach the duplex inverter sensor (from the registration roller).
7504 125	Dup Inverter: ON
	Paper is caught at the duplex inverter sensor.

	Original Jam/Loc	[0 to 9999 / <b>0</b> / 1/step]
7505*	Displays the total number of the original jams on the ARDF that have occurred at a certain timing or at a certain location.	
7505 1	At power on	
	Paper jam occurs at power on.	
7505 210	Regist SN: OFF	
7505210	The original does not reach the registration sensor.	
7505 011	Regist SN: ON	
7505 211	The original is caught at the registratior	ı sensor.
7505 212	Paper Exit SN: OFF	
	The original does not reach the exit sensor.	
7505 213	Paper Exit SN: ON	
	The original is caught at the exit sensor.	
7505 214	Inverter SN: OFF	

	The original does not reach the inverter sensor.
7505 215	Inverter SN: ON
	Not used in this machine.

7506	[Paper Jam/ Size] Jam Cou	unter: Pa	per Size	
7506 6	A5 LEF	CTL		
7506 44	HLT LEF			
7506 133	A4 SEF			
7506 134	A5 SEF		Displays the number of jams according to the pape	
7506 142	B5 SEF		size.	
7506 164	LG SEF		[ 0 to 9999 / <b>0</b> / 1 sheet/step ]	[ 0 to 9999 / <b>0</b> / 1 sheet/step ]
7506 166	LT SEF			
7506 172	HLT SEF			
7506 255	Others			

7507*	Display-P Jam History
7507 1	Displays the latest 10 paper-jam history. The list below shows the possible 12 codes:
	1, 10, 11, 12, 50, 60, 70, 120, 121, 122, 123, 125
	The codes correspond to the menus of SP7-504. For example, the code 1 corresponds to SP7-504-001, and the code 10 corresponds to SP7-504-10.

Displays the total number of the original-jams history.7508 1The possible codes are 210, 211, and 216.The codes correspond to the menus of SP7-505. For example, the code 210 corresponds to SP7-505-210, and the code 211 corresponds to SP7-505-211.	7508*	Display-O Jam History
	7508 1	Displays the total number of the original-jams history. The possible codes are 210, 211, and 216. The codes correspond to the menus of SP7-505. For example, the code 210 corresponds to SP7-505-210, and the code 211 corresponds to SP7-505-211.

7801	Memory/Version/PN
7801 255	Memory/Version

	Displays the he part number and version of all ROMs in the machine
7803*	PM Counter
7803 1	Displays the PM counter.
L	

7804	PM Counter Reset
7804 1	Resets the PM counter (SP7-803-001). When the program ends normally, the message "Completed" is displayed.

7807	Reset–SC/Jam Counters
7807 1	Resets the SC, paper, original, and total jam counters. When the program ends normally, the message "Completed" is displayed. SP7-807-1 does not reset the following logs: SP7-507 (Display-Paper Jam History) and SP7-508 (Display-Original Jam History).

7826	MF Error Counter <b>Japan Only</b>	
	Displays the number of counts requested of the card/key counter.	
001	Error Total	A request for the count total failed at power on. This error will occur if the device is installed but disconnected.
002	Error Staple	The request for a staple count failed at power on. This error will occur if the device is installed but disconnected.

7927	MF Error Counter Clear
/82/	Press Execute to reset to 0 the values of SP7826. Japan Only

7832*	Display-Self-Diag
7832 1	Displays the SC codes and the number of their occurrences. Each number is in the range of 0 to 9999.

7026	[Resident Memory]
7030	Displays the contents of the memory on the controller board.
7901	Assert Info

	Records the location where a problem is detected in the program. The data stored in this SP is used for problem analysis. <b>DFU</b>			
7901 1	File Name	-	-	
7901 2	Number of Lines	-	-	
7901 3	Location	-	-	

	Dsply–Info Count			
7991*	Displays the total operating time or the total number of operations. The time is displayed in the following format: day: hour: minute: second.			
7001.2	Dsply-ID S Work			
79913	The total of the time when the ID sensor is working.			
79914	Dsply-Dev Counter			
	The total number of paper outputs.			
7991 5	Dsply-ID Er Count			
	The total number of ID-sensor errors.			

7992*	Reset-Info Count		
7002 4	Reset-Dev Count		
79924	Clears the development counter (SP7-991-004).		
7992 5	Reset-ID Er Count		
	Clears the ID sensor error counter (SP7-991-005).		

### SP8-XXX (History)

Most of the SPs in this group are prefixed with a letter that indicates the mode of operation (the mode of operation is referred to as an "application"). Before reading the Group 8 Service Table, make sure that you understand what these prefixes mean.

Prefixes	What it means		
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.)	

C:	Copy application.	
F:	Fax application.	Totals (pages, jobs, etc.) executed for each application
P:	Print application.	when the job was not stored on the document server.
S:	Scan application.	
O:	Other applications (external network applications, for example)	Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future.

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

### Key for Abbreviations

Abbreviation	What it means		
/	"By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application		
>	More (2> "2 or more", 4> "4 or more"		
AddBook	Address Book		
Apl	Application		
B/W Black & White			
Bk Black			
C Cyan			
ColCr	Color Create		
ColMode	Color Mode		
Comb	Combine		
Comp	Compression		
Deliv	Delivery		
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example.		
Dev Counter	Development Count, no. of pages developed.		

Abbreviation	What it means			
Dup, Duplex	Duplex, printing on both sides			
Emul	Emulation			
FC	Full Color			
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)			
Full Bleed	No Margins			
GenCopy	Generation Copy Mode			
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10=1)			
IFax	Internet Fax			
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.			
К	Black (YMCK)			
LS	Local Storage. Refers to the document server.			
LSize	Large (paper) Size			
Mag	Magnification			
MC	One color (monochrome)			
NRS	NRS (@Remote), which allows a service center to monitor machines remotely. "@Remote" is used overseas; "CSS" is used in Japan.			
Org	Original for scanning			
OrgJam	Original Jam			
Palm 2	Print Job Manager/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to moved around, combined, and converted to different formats.			
PC	Personal Computer			
PGS	Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON.			

Abbreviation	What it means		
PJob	Print Jobs		
Ppr	Paper		
PrtJam	Printer (plotter) Jam		
PrtPGS	Print Pages		
R	Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available.		
RCG	Remote Communication Gate		
Rez	Resolution		
SC	Service Code (Error SC code displayed)		
Scn	Scan		
Sim, Simplex	Simplex, printing on 1 side.		
S-to-Email	Scan-to-E-mail		
SMC	SMC report printed with SP5990. All of the Group 8 counters are recorded in the SMC report.		
Svr	Server		
TonEnd	Toner End		
TonSave	Toner Save		
TXJob	Send, Transmission		
ҮМС	Yellow, Magenta, Cyan		
ҮМСК	Yellow, Magenta, Cyan, Black		

### **Vote**

• All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear.

8 191	T:Total Scan PGS	CTL	These SPs count the pages scanned by each
8 192	C:Total Scan PGS	CTL	application that uses the scanner to scan images.
8 193	F:Total Scan PGS	CTL	[0 to 99999999 / <b>0</b> / 1]

S:Total Scan PGS CTI
3.10101 3Cull 1 G3 C1

- SP 8 191 to 8 196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.
- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

#### Examples

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

	T:LSize Scan PGS	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 201	These SPs count the total number of large pages input with the scanner for scan and copy jobs. Large size paper (A3/DLT) scanned for fax transmission is not counted.				
0 202	F:LSize Scan PGS	CTL	[0 to 99999999 / <b>0</b> / 1]		
0 203	These SPs count the number of large pages scanned by original type for Fax jobs.				
	S:LSize Scan PGS	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 205	These SPs count the total number of large pages input with the scanner for scan jobs only. Large size paper (A3/DLT) scanned for fax transmission are not counted.				

	ADF Org	y Feeds	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 221	These SPs count the number of pages fed through the ADF for front and back side scanning.				
001	Front	Number of from	ont sides fed for scanning:		

		<ul> <li>With an ADF/ARDF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning.</li> <li>With an ADF/ARDF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning.</li> <li>(The front side is determined by which side the user loads face up.)</li> </ul>
002	Back	Number of rear sides fed for scanning: With an ADF/ARDF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning. With an ADF/ARDF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning.

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

8 281	T:Scan PGS/TWAIN	CTL	These SPs count the number of pages scanned using a
8 285	S:Scan PGS/TWAIN	CTL	<ul> <li>TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions.</li> <li>[0 to 99999999 / 0 / 1]</li> <li>Note</li> <li>At the present time, these counters perform identical counts.</li> </ul>

8 291	T:Scan PGS/Stamp	CTL	These SPs count the number of pages stamped with the
8 293	F:Scan PGS/Stamp	CTL	stamp in the ADF unit.
8 295	S:Scan PGS/Stamp	CTL	[0 to 99999999 / <b>0</b> / 1]

	T:Scan PGS/Size         CTL         [0 to 99999999 / 0 / 1]					
8 301	These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441].					
8 302	C:Scan PGS/Size	CTL	[0 to 99999999 / <b>0</b> / 1]			

	These SPs count by size the total number of pages scanned by the Copy application. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442].			
	F:Scan PGS/Size	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 303	These SPs count by size the total number of pages scanned by the Fax application. these totals to compare original page size (scanning) and output page size [SP 8-4			
	S:Scan PGS/Size	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 305	These SPs count by size the to Use these totals to compare of 8-445].	otal numbe original pa	er of pages scanned by the Scan application. Ige size (scanning) and output page size [SP	
-001	A3			
002	A4			
003	A5			
004	B4			
005	В5			
006	DLT			
007	LG	_		
008	LT			
009	HLT			
010	Full Bleed			
-254	Other (Standard)			
-255	Other (Custom)			

8 381	T:Total PrtPGS	CTL	
8 382	C:Total PrtPGS	CTL	These SPs count the number of pages printed by the
8 383	F:Total PrtPGS	CTL	customer. The counter for the application used for storing the pages increments.
8 384	P:Total PrtPGS	CTL	[0 to 99999999 / <b>0</b> / 1]
8 385	S:Total PrtPGS	CTL	

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored is counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
  - Blank pages in a duplex printing job.
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
  - Reports printed to confirm counts.
  - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
  - Test prints for machine image adjustment.
  - Error notification reports.
  - Partially printed pages as the result of a copier jam.

8 391	LSize PrtPGS	CTL	[0 to 99999999 / <b>0</b> / 1]		
	These SPs count pages printed on paper sizes A3/DLT and larger.				
	<ul> <li>In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.</li> </ul>				

8 411 Prints/Duplex CTL	This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0 to 99999999 / <b>0</b> / 1]
-------------------------	--

	T:PrtPGS/Dup Comb	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 421	These SPs count by binding c processed for printing. This is	pine, and n-Up settings the number of pages I for all applications.		
8 422	C:PrtPGS/Dup Comb	CTL	[0 to 99999999 / <b>0</b> / 1]	
	These SPs count by binding and combining, and n-Up settings the number of pages processed for printing by the copier application.			
8 423	F:PrtPGS/Dup Comb	CTL	[0 to 99999999 / <b>0</b> / 1]	

		These SPs count by binding and combining, and n-Up settings the number of pages processed for printing by the fax application.			
		P:PrtPGS/Dup Comb		CTL	[0 to 99999999 / <b>0</b> / 1]
8 424		These SPs count by binding and combining, and n-Up settings the number of pag processed for printing by the printer application.			pining, and n-Up settings the number of pages application.
		S:PrtPGS/Dup Comb		CTL	[0 to 99999999 / <b>0</b> / 1]
8 425		These SPs count by bir processed for printing	nding c by the	and comb scanner	pining, and n-Up settings the number of pages application.
		O:PrtPGS/Dup Comb		CTL	[0 to 99999999 / <b>0</b> / 1]
8 427		These SPs count by binding and combining, and n-Up settings the numbe processed for printing by Other applications			bining, and n-Up settings the number of pages cations
	001	Simplex> Duplex	-		
	002	Duplex> Duplex	-		
	003	Book> Duplex	-		
	004	Simplex Combine	-		
	005	Duplex Combine	-		
	006	2>	2 pages on 1 side (2-Up)		
	007	4>	4 pa	ges on 1	side (4-Up)
	008	6>	6 pages on 1 side (6-Up)		
	009	8>	8 pa	ges on 1	side (8-Up)
	010	9>	9 pa	ges on 1	side (9-Up)
	011	16>	16 pages on 1 side (16-Up)		
	012	Booklet	-		
	013	Magazine	-		

- These counts (SP8-421 to SP8-427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.
- Here is a summary of how the counters work for Booklet and Magazine modes:

Вос	oklet	Magazine	
Original Pages	Count	Original Pages	Count
1	1	1	1
2	2	2	2
3	2	3	2
4	2	4	2
5	3	5	4
6	4	6	4
7	4	7	4
8	4	8	4

0 4 4 1	T:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 44 1	These SPs count by print	These SPs count by print paper size the number of pages printed by all applications.			
	C:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 442	These SPs count by print application.	paper size tl	ne number of pages printed by the copy		
0.440	F:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 443	These SPs count by print	These SPs count by print paper size the number of pages printed by the fax application.			
	P:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 444	These SPs count by print application.	These SPs count by print paper size the number of pages printed by the printer application.			
	S:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 445	These SPs count by print paper size the number of pages printed by the s application.				
0.447	O:PrtPGS/Ppr Size	CTL	[0 to 99999999 / <b>0</b> / 1]		
0 44/	These SPs count by print	These SPs count by print paper size the number of pages printed by Other applications.			
00	1 A3 .	-			

002	A4
003	A5
004	B4
005	B5
006	DLT
007	LG
008	LT
009	HLT
010	Full Bleed
254	Other (Standard)
255	Other (Custom)

### • These counters do not distinguish between LEF and SEF.

9 451	PrtPGS/Ppr Tray		CTL	[0 to 99999999 / <b>0</b> / 1]		
These SPs count t		ne num	ne number of sheets fed from each paper feed station.			
001	Bypass	Bypass Tray				
002	Tray 1	Copier				
003	Tray 2	Copier				
004	Tray 3	Currently not used.				
005	Tray 4	Currently not used.				
006	Tray 5	Currently not used.				
007	Tray 6	Currently not used.				
008	Tray 7	Currently not used.				
009	Tray 8	Currently not used.				
010	Tray 9	Currently not used.				

8 461	T:PrtPGS/Ppr Type	CTL	[0 to 99999999 / <b>0</b> / 1]
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		These SPs count by paper type the number pages printed by all applications.				
		<ul> <li>These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing.</li> </ul>				
		• Blank sheets (covers, chap	pter cover	s, slip sheets) are also counted.		
		<ul> <li>During duplex printing, pa on one side counts as 1.</li> </ul>	iges printe	d on both sides count as 1, and a page printed		
8 462		C:PrtPGS/Ppr Type	CTL	[0 to 99999999 / <b>0</b> / 1]		
0 402		These SPs count by paper type	the numb	er pages printed by the copy application.		
8 463		F:PrtPGS/Ppr Type	CTL	[0 to 99999999 / <b>0</b> / 1]		
0 400		These SPs count by paper type	the numb	er pages printed by the fax application.		
8 161		P:PrtPGS/Ppr Type	CTL	[0 to 99999999 / <b>0</b> / 1]		
These S		These SPs count by paper type	hese SPs count by paper type the number pages printed by the printer application.			
	001	Normal				
	002	Recycled				
	003	Special	Special			
	004	Thick				
	005	Normal (Back)				
	006	Thick (Back)				
	007	OHP				
	008	Other				

8 521	T:PrtPGS/FIN	CTL	[0 to 99999999 / <b>0</b> / 1]	
	These SPs count by finishing mode the total number of pages printed by all applications.			
	C:PrtPGS/FIN	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 522	These SPs count by finishing mode the total number of pages printed by the Copy application.			
8 523	F:PrtPGS/FIN	CTL	[0 to 99999999 / <b>0</b> / 1]	

		These SPs count by finishing mode the total number of pages printed by the Fax application.				
		<b>↓</b> Note				
		Print finishing options for	r received	faxes are currently not available.		
		P:PrtPGS/FIN	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 524 These SPs count by finishing mode the total number of page application.			otal number of pages printed by the Print			
		S:PrtPGS/FIN	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 525		These SPs count by finishing mode the total number of pages printed by the Scanner application.				
	001	Sort				
	002	Stack				
	003	Staple				
	004	Booklet				
	005	Z-Fold				
	006	Punch				
	007	Other				

### Note

- If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
- The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted.

	T:Counter	CTL	[0 to 99999999 / <b>0</b> / 1]	
8 581	This SP counts the total ou application used. In additi also displayed in the User	is SP counts the total output broken down by color output, regardless of the oplication used. In addition to being displayed in the SMC Report, these counters o so displayed in the User Tools display on the copy machine.		
001	Total			

8 591	O:Counter	CTL	[0 to 99999999 / <b>0</b> / 1]
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8 591 1	A3/DLT	These SPs count the totals for A3/DLT paper use, number of duplex
8 591 2	Duplex	pages printed, and the number of staples used. These totals are for Other (O:) applications only.

8 601	Cvg Counter	CTL	[0 to 99999999 / <b>0</b> / 1]
8 601 1	Cvg: BW %	Displays the total coverage of each mode.	
8 601 11	Cvg: BW Pages	Displays the number of the printouts in each mode.	

8 631	T:FAX TX PGS	CTL	[0 to 99999999 / <b>0</b> / 1]			
	This SP counts by color mode the number of pages sent by fax to a telephone number.					
0 4 2 2	F:FAX TX PGS	CTL	[0 to 99999999 / <b>0</b> / 1]			
8 633	This SP counts by color mode the number of pages sent by fax to a telephone number.					
001	B/W					

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/ W or Color.
- At the present time, this feature is provided for the Fax application only so SP8631 and SP8633 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

001	B/W					
8 643	This SP counts by color mode the number of pages sent by Fax as fax images using I-Fax.					
	F:IFAX TX PGS	CTL	[0 to 99999999 / <b>0</b> / 1]			
8 641	This SP counts by color mode the number of pages sent by fax to as fax images using I-Fax.					
	T:IFAX TX PGS	CTL	[0 to 99999999 / <b>0</b> / 1]			

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/ W or Color.
- At the present time, this feature is provided for the Fax application only so SP8641 and SP8643 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8 651		T:S-to-Email PGS	CTL	[0 to 99999999 / <b>0</b> / 1]		
		This SP counts by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.				
		S:S-to-Email PGS	CTL	[0 to 99999999 / 0 / 1]		
8 655		This SP counts by color mode the total number of pages attached to an e-mail for the Scan application only.				
C	001	B/W				
C	002	Color				

#### Note

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10 (the pages are sent to the same SMTP server together).
- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.).

8 661	T:Deliv PGS/Svr	CTL	[0 to 99999999 / <b>0</b> / 1]	
	These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.			
8 665	S:Deliv PGS/Svr	CTL	[0 to 99999999 / <b>0</b> / 1]	

	These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application.
001	B/W
002	Color

#### **Vote**

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- If the job is canceled before storage on the Scan Router server finishes, the count is not done.
- The count is executed even if there is confirmation of the arrival at the Scan Router server.

8 671	T:Deliv PGS/PC	CTL	[0 to 99999999/0/1]			
		These SPs count by color mode the total number of pages sent to a folder on a PC (Scan- to-PC) with the Scan and LS applications.				
		S:Deliv PGS/PC	CTL	[0 to 99999999 / <b>0</b> / 1]		
8 675		These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application.				
	001	B/W				
	002	Color				

#### Note

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- If several documents are merged for sending, the number of pages stored are counted for the application that stored them.
- When several documents are sent by a Fax broadcast, the F: count is done for the number of pages sent to each destination.

8 681	T:PCFAX TXPGS	CTL	These SPs count the number of pages sent by PC Fax.
8 683	F:PCFAX TXPGS	CTL	These SPs are provided for the Fax application only, so the counts for SP8-681 and SP8-683 are the same. [0 to 99999999 / <b>0</b> / 1]

• This counts pages sent from a PC using a PC fax application, from the PC through the copier to the destination.

• When sending the same message to more than one place using broadcasting, the pages are only counted once. (For example, a 10-page fax is sent to location A and location B. The counter goes up by 10, not 20.)

	TX PGS/Port	CTL	[0 to 99999999 / <b>0</b> / 1]			
8 701	These SPs count the num example, if a 3-page or (G3, G4) is 12.	hese SPs count the number of pages sent by the physical port used to send them. Fo xample, if a 3-page original is sent to 4 destinations via ISDN G4, the count for ISE G3, G4) is 12.				
8 701 1	PSTN-1	-				
8 701 2	PSTN-2	-				
8 701 3	PSTN-3	-				
8 701 4	ISDN (G3,G4)	-				
8 701 5	Network	-				

8711	T:Scan PGS/Comp	CTL	[0 to 99999999 / <b>0</b> / 1]	
8715	S:Scan PGS/Comp	CTL	[0 to 99999999 / <b>0</b> / 1]	
	These SPs count the number of pages sent by each compression mode.			
-001	JPEG/JPEG2000	-		
-002	TIFF M/S (Multi/ Single)	-		
-003	PDF	-		
-004	Other	-		

8 771	Dev Counter	CTL	[0 to 99999999/ <b>0</b> / 1]	
	This SP counts the total number of developed images.			
8 771 1	Total			

8 781	Toner Botol Info.	*BICU	[0 to 99999999/ <b>0</b> / 1]	
	This SP counts the total number of developed images.			
8 781 1	Total			

8 801	Toner Remain	CTL	[0 to 100 / 0 / 1]		
	This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time.				
	♦ Note				
	<ul> <li>This precise methors of other machines of steps).</li> </ul>	od of mea n the mar	asuring remaining toner supply (1% steps) is better than ket that can only measure in increments of 10 (10%		
8 801 1	К				

	Cvr Cnt:0-10%	*BICU	[0 to 99999999/ 0 / 1]		
8 851	These SPs display the number of scanned sheets on which the coverage of each color is from 0% to 10%.				
8 851 11	0-2%:Bk				
8 851 21	3-4%: Bk				
8 851 31	5-7%: Bk				
8 851 41	8-10%: Bk				

8 861	Cvr Cnt: 11-20%	*BICU	[0 to 99999999/ 0 / 1]	
	These SPs display the number of scanned sheets on which the coverage of each color is from 11% to 20%.			
8 861 1	Bk			

8 871	Cvr Cnt: 21-30%	*BICU	[0 to 99999999/0/1]	
	These SPs display the number of scanned sheets on which the coverage of each color is from 21% to 30%.			
8 871 1	Bk			

8 881	Cvr Cnt: 31%-	*BICU	[0 to 99999999/0/1]		
	These SPs display the number of scanned sheets on which the coverage of each color is 31% or higher.				
8 881 1	Bk				
8 891	Page/Toner Bottle *BICU [0 to 99999999/0/1]				
---------	---	--	--	--	--
	This SP displays the number of sheets output by the scan application.				
8 891 1	Bk				

	Page/Toner k Prev1         *BICU         [0 to 99999999/0/1]			
8 901	This SP displays the number of sheets output by the scan application with the replaced units.			
8 901 1	Bk			

	Page/Toner k Prev2	*BICU	[0 to 99999999/ 0 / 1]
8911	This SP displays the numbe replaced before the previo	output by the scan application with the unit ced unit (two steps back from the current unit).	
8 911 1	Bk		

8 921	Cvr Cnt/Total	*BICU	
8 921 1	Coverage(%): BK	[0 to 2147483647 / <b>0</b> / 1] These SPs display the total coverage percentage of sheets output by the machine.	
8 921 11	Covwerage/P: Bk	[O to 99999999 / <b>O</b> / 1] These SPs display the total coverage pages output by the machine.	

	Cvr Cnt/Total	CTL [0 to 99999999 / 0 / 1]					
8 941	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement of their compliance with ISO Standards.						
8 941 1	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).					
8 941 2	Standby Time	Engine not operating. Includes time while controller saves da to HDD. Does not include time spent in Energy Save, Low Powe or Off modes.					

8 941 3	Energy Save Time	Includes time while the machine is performing background printing.
8 941 4	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.
8 941 5	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.
8 941 6	SC	Total down time due to SC errors.
8 941 7	PrtJam	Total down time due to paper jams during printing.
8 941 8	OrgJam	Total down time due to original jams during scanning.
8 941 9	Spl PM Unit End	Total down time due to toner end.

9 000	AdominCounter		CTL	[0 to 9999999 / <b>0</b> / 1]		
0 7 7 7	Displays the user set	ing	ng counter for administrator.			
8 999 1	Total	-				
8 999 3	Сору: ВW	-				
8 999 7	Printer: BW	-				
8 999 10	FaxP: BW	-				
8 999 13	Duplex	-				
8 999 15	Cvr: BW %	-				
8 999 17	Cvr: BW Pages	-				
8 999 101	SedTtl: FC					
8 999 102	SendTtl: BW	-				
8 999 103	FaxSend	-				
8 999 104	FaxSend: BW					
8 999 105	FaxSend: BW	-				

# ID Sensor Error Analysis (SP2-221)

The image quality may become very bad when the ID sensor does not operate properly. However, there is no such SC code that indicates ID-sensor malfunction; instead, SP2-221 shows you some information on the ID sensor. Check this information when the image quality is not very good.

The table lists the information shown with SP2-221 (ID Sensor Error Analysis).

SP	Error condition	Possible cause	Remarks
SP2-221-1 Vsg (VG in the display)	Vsg < 2.5V or (Vsg – Vsp) < 1.00V	<ul><li>ID sensor defective</li><li>ID sensor dirty</li><li>Drum not charged</li></ul>	-
SP2-221-2 Vsp (VP in the display)	Vsp > 2.5V or (Vsg – Vsp) < 1.00V	<ul><li>Toner density very low</li><li>ID sensor pattern not created</li></ul>	-
SP2-221-3 Power (PW in the display)	Vsg < 3.5V when maximum power (979) is applied	<ul><li>ID sensor defective</li><li>ID sensor dirty</li><li>Drum not get charged</li></ul>	Power source for the ID-sensor light
SP2-221-4 Vsdp	No Error Conditions		-
SP2-221-5 Vt	Vt > 4.5V or Vt < 0.2V	• TD sensor defective	-
SP2-221-6 Vts	-	-	-

# **Memory Clear**

## **GW Machine**

The GW machine (the machine with the optional controller box) stores the engine data in the NVRAM on the BICU, and stores the other data in the NVRAM on the optional controller. To distinguish between the engine data and the other data, see SP5-801-003 through 015. This service program (SP5-801) handles the controller data. Any data that is not handled by SP5-801 is the engine data. The data in the BICU NVRAM (engine data) is cleared by SP5-998-001 while the data in the controller NVRAM (controller data) is cleared by SP5-801-xxx (for exceptions, see "Exceptions" as described below).

Machine	Data	NVRAM	Cleared by	Remarks
GW	Engine data	BICU	SP5-998-001	Any data other than controller data

Controller data	Controller	SP5-801-xxx	SCS, IMH, MCS, Copier application, Fax application, Printer application, Scanner application, Web service/ network application, NCS, R-Fax, DCS, UCS

# Exceptions

SP5-998-001 clears most of the settings and counters stored in the NVRAM on the BICU (the values return to their default values). However, the following settings are not cleared:

- SP5-807 (Area Selection)
- SP5-811-001 (Serial Num Input [Code Set])
- SP5-811-003 (Serial Num Input [ID2 Code Display])
- SP5-812-001 (Service TEL [Telephone])
- SP5-812-002 (Service TEL [Facsimile])
- SP5-907 (Plug & Play)
- SP7 (Data Log)
- SP8 (History)

Use SP5-998-001 after you have replaced the BICU NVRAM or when the BICU NVRAM data is corrupted. When the program ends normally, the message "Completed" is displayed. When you have replaced the controller NVRAM or when the controller NVRAM data is corrupted, use SP5-801-001. The message is the same as the basic machine.

# Memory Clear Procedure

- 1. Print out all SMC data lists (🖝 "SMC Print").
- 2. Do SP5-998-001.
- 3. Press the OK key.
- 4. Select "Execute." The messages "Execute?" followed by "Cancel" and "Execute" are displayed.
- 5. Select "Execute."
- 6. When the program has ended normally, the message "Completed" is displayed. If the program has ended abnormally, an error message is displayed.
- 7. Turn the main switch off and on.
- Adjust the printer and scanner registration and magnification (\* "Copy Adjustment" in the chapter "Replacement and Adjustment").
- 9. Refer to the SMC lists, and enter any values that differ from the factory settings. Double-check the values for SP4-901.

- 10. Adjust the standard white level (SP4-428).
- 11. Initialize the TD sensor (SP 2-214).
- 12. Check the copy quality and the paper path.

# Input Check (SP5-803)

# **Conducting Input Check**

- 1. Select SP5-803.
- 2. Select the number (see the table below) corresponding to the component.
- 3. Select "Execute." The copy mode is activated.
- 4. The sign "01H" or "00H" is displayed (see the table below).

# Input Check Table

Num.	Sensor/Switch	1h	Oh
001	Safety SW	Open	Closed
003	Right Cover SW	Open	Closed
005	Tray Cover SW	Open	Closed
006	Upper Relay S	Paper detected	Not detected
009	Registration Sensor	Paper detected	Not detected
010	Exit Sensor	Paper detected	Not detected
011	Duplex Inverter S	Paper detected	Not detected
014	By-pass PE S	Paper detected	Not detected
016	Upper PE S	Paper detected	Not detected
017	Lower PE S	Paper detected	Not detected
027	PCU Set Signal	Installed	Not installed
028	Optional Tray	*	*
030	Duplex Installed	Installed	Not installed
032	Main M Lock	Locked	Not locked

Num.	Sensor/Switch	1h	Oh
033	Polygon M Lock	Locked	Not locked
035	Total CO Install	Installed	Not installed
036	Key CO Install	Installed	Not installed
037	L-Synchronization	Detected	Not detected
039	DF-Cover Open S	Open	Closed
040	DF-Original Set S	Paper detected	Not detected
041	DF-Registration S	Paper detected	Not detected
042	DF-Exit S	Paper detected	Not detected
044	DF-Reverse S	Paper detected	Not detected
045	Platen Cover S	Open	Closed
050	Fan Motor Lock (High speed)	High speed	Low speed or stop
052	Front Cover SW	Open	Closed
053	HP Sensor	Detected	Not detected

# \* Available Paper Feed Unit

00	None
30	1-tray paper feed unit

# Output Check (SP5-804)

# Conducting Output Check

- To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.
- 1. Select SP5-804.
- 2. Select the number (see the table below) corresponding to the component.
- 3. Select "ON."
- 4. To stop the operation, select "OFF."

# **Output Check Table**

Num.	Component	
001	Main Motor Forward	
002	Main Motor Reverse	
003	Quenching Lamp	
004	Toner Supply Clutch Forward	
005	Fan Motor High	
006	Fan Motor Low	
007	Registration Clutch	
008	By-pass Feed Clutch	
009	Upper Feed Clutch	
010	Lower Feed Clutch	
017	BK-Lift Motor	
020	Duplex Inv Motor Reverse	
021	Duplex Inv Motor Forward	
024	Duplex Inv Motor Hold	
026	Polygon Motor	
027	Polygon M/LD	
028	LD	
029	DF-Feed M	
030	DF-Transport M	
031	DF-Feed Clutch	
034	DF-Gate SOL (Junction Gate Solenoid)	
038	Fusing Solenoid	
039	Fast Dup Inv M-Rev	

When checking Fan Motor High (005) or Fan Motor Low (006) note the following:

- These motors may not respond when the fusing temperature is high.
- Selecting "ON" checks that one of these motors normally operates. Selecting "OFF" turns off the motor that you have started by selecting "ON." However, this does not guarantee that the motor normally stops during normal operation.

## Machine No. Setting (SP5-811-001)

#### Specifying Characters

SP5-811-001 specifies the serial number. For the machine with the optional controller, you use the numeric keypad and the optional operation panel.

#### GW Machine

You can use the numeric keypad to type numbers. In addition, you can use the operation panel to type other characters. When you press the "ABC" key, the letter changes as follows:  $A \rightarrow B \rightarrow C$ . To input the same letter two times, for example "AA," you press the "ABC" key, the "Space" key, and the "ABC" key. To switch between uppercase letters and lowercase letters, press the "Shift" key.

## Serial Number and NVRAM

Serial numbers are stored in the NVRAM before shipment and are not cleared. You must specify a serial number after you replace the NVRAM.

### NVRAM Data Upload/Download

#### Uploading Content of NVRAM to an SD card

Follow this procedure to upload SP code settings from NVRAM to an SD card.

### **Vote**

- This data should always be uploaded to an SD card before the NVRAM is replaced.
- Before switching the machine off, execute SP 5990-1 (SMC Print). You will need a record of the NVRAM settings if the upload fails.
- 2. Turn off the main power of the copier.
- 3. Remove the slot cover 3 (uppermost one) ( x 1).
- 4. Insert the SD card into the service slot 3 (uppermost one), then turn on the main power of the copier.

- 5. Execute SP 5824-1 (NVRAM Data Upload) then press the "Execute" key.
  - When uploading is finished, a file is coped to an NVRAM folder on the SD card. The file is saved to the path and filename:

#### NVRAM\<serial number>.NV

Here is an example with Serial Number "B0700017":

NVRAM\B0700017.NV

6. In order to prevent an error during the download, be sure to mark the SD card that holds the uploaded (saved) data with the number of the machine from which the data was uploaded (saved).

#### 🔂 Important 🔵

#### • NVRAM data from more than one machine can be uploaded (saved) to the same SD card.

- 7. Turn off the main power, and then remove the SD card from the slot 3 (the uppermost one).
- 8. Reassemble the machine.

#### Downloading an SD Card to NVRAM

Follow this procedure to download (save) SP data from an SD card to the NVRAM in the machine.

- If the SD card with the NVRAM data is damaged, or if the connection between the controller and BICU is defective, the NVRAM data download may fail.
- If the download fails, repeat the download procedure.
- If the second attempt fails, enter the NVRAM data manually using the SMC print you created before uploading the NVRAM data. (
   *above* procedure)
- 1. Turn off the main power of the copier.
- 2. Remove the slot cover 3 (the uppermost one) ( $\hat{\mathscr{F}} \times 1$ ).
- 3. Insert the SD card with the NVRAM data into the service slot 3 (the uppermost one).
- 4. Turn on the main power of the copier.
- 5. Execute SP 5825-1 (NVRAM Data Download) and press the "Execute" key.
- 6. Turn off the main power of the copier, and then remove the SD card from the slot 3 (the uppermost one).
- 7. Reassemble the machine.

#### Note

• In order for the NVRAM data to download successfully, the serial number of the file on the SD card must match the serial number of the machine. If the serial numbers do not match, the download will fail.

This procedure downloads (saves) the following data to the NVRAM:

• Total Count

• C/O, P/O Count

# Firmware Update Procedure

This section illustrates how to update the firmware of the GW machine (the machine with the optional controller box).

To update the firmware for the GW machine, you must have the new version of the firmware downloaded onto an SD (Secure Digital) Card. The SD Card is inserted into the uppermost slot on the right side of the controller box, viewed from the back of the machine.

#### Before You Begin...

An SD card is a precision device, so always observe the following precautions when handling SD cards:

- Always switch the machine off before inserting an SD card. Never insert the SD card into the slot with the power on.
- When the power is switched on, never remove the SD card from the service slot.
- Never switch the machine off while the firmware is downloading from the SD card.
- Store SD cards in a safe location where they are not exposed high temperature, high humidity, or
  exposure to direct sunlight.
- Always handle SD cards with care to avoid bending or scratching them. Never drop an SD card or expose it to other shock or vibration.

Keep the following points in mind while you are using the firmware update software:

- "Upload" means to send data from the machine to the SD card, and "download" means to send data from the SD card to the machine.
- To select an item on the LCD screen, press the appropriate key on the operation panel, or press the appropriate number key on the 10-key pad of the operation panel.
- Before starting the firmware update procedure, always make sure that the machine is disconnected from the network to prevent a print job for arriving while the firmware update is in progress.

#### Firmware Update Procedure

#### Note

 Before beginning the following, first confirm which firmware version(s) are currently installed in the machine with SP7-801-255.

#### **SD Card Preparation**

- 1. Format an SD card with, for example, SD Formatter v1.1.
- 2. Create a "romdata" folder on the card.

- 3. Create the following folders within the "romdata" folder: B121, B620, B622, B658, B681, B685
- Download the firmware from the server and store the files in the folder with the corresponding model code on the SD card.

#### Example:

File B1215540B should be stored in the "B121" folder, whereas files B6585902B, B6585903B, and B6585905B should be stored in the "B658" folder.

#### Firmware Update

#### Note

• It is strongly recommended to store only B245/B276/B277 files on SD cards used for downloading to B245/B276/B277. With the controller used on this model, a firmware update may sometimes be interrupted if there is software for multiple models stored on the same SD card.



- 1. Turn off the main power switch.
- 2. If the machine is connected to a network, disconnect the network cable from the copier.
- 3. Remove the slot cover [A] ( $\hat{\mathscr{F}} \times 1$ )
- 4. With the label on the SD card facing the rear side of the machine, insert the SD card into the uppermost slot [B] on the controller box. Slowly push the SD card into the slot so it locks in place.
- 5. Make sure the SD card is locked in place.

(To remove the SD card, push it in to unlock the spring lock and then release it so it pops out of the slot.)

6. Switch the main power switch on. After about 5 seconds, the LCD will display "Please wait..." Then, about 60 seconds later, the LCD will display "Program UpDate Menu P.01" on the first line and the name of the firmware on the second line (e.g. System/Copy).



- 7. Press the "OK" key to select a module.
  - To scroll through the menus, press the  $\Delta$  or  $\nabla$  keys [A].



- To view the firmware version, press the right key. "ROM" is the information on the current firmware. "NEW" is the information on the firmware in the SD card.
- To return to the menu, press the  $\triangleleft$  key.
- To select the module, press the OK key.
- To scroll through the module name, the serial number, and the version, press the *⊲* key or *⊳* key.
- If you wish to install the following firmware simultaneously, press the START key. The scroll keys can be used to confirm that this firmware has been selected (highlighted with a dark background).

[Engine, FCU, Scanner, Printer, Printer Font, Security Module]

#### C Important

- Please note that the following firmware cannot be updated simultaneously. The update
  procedure must be repeated for each individually.
- System/Copy, ServiceCardNetFile, ServiceCardNIB, ServiceCardFAX, ServiceCardWebSystem.



- When you have selected a module, the text lines are highlighted, and the "Verify" key and the "Update" key are displayed.
- 8. Select a module and press the "Update" key.

### C Important

### • Do NOT press the "Verify" key.

- 9. The firmware update program starts and the message "Loading" is displayed.
  - The update will begin, and then will take a few minutes to complete. The LCD will initially display, "Updating... \*\*\*------".
  - When the update is completed, the LCD display will change to "Update done" or "Updated / Power Off On".

Update Do	one	
Engine	Card No.: 1/1	
		h867s505

10. Check that the message "Update Done" is displayed.

#### Confirmation

- 1. Turn the main power switch off and on.
  - The LCD will display "Please wait..." for about 60 seconds, after which it will return to the "Program UpDate Menu" screen.
- 2. Repeat Steps 1-8 above until all firmware updates are complete.
- 3. Turn the main power switch off.
- 4. Remove the SD card from the lower slot on the controller by pushing on the card to release the spring lock.



If an error occurs, the error code is displayed. For a list of information on error codes, see the following table.

Cod e	Cause	Necessary Action
E20	Physical address mapping error	• Insert the SD card correctly.
		• Use another SD card
E22	Decompression error	• Store correct data in the SD card.
F00	Update program error	• Update controller program.
LZJ		Replace the controller.
E24	SD card access error	• Insert the SD card correctly.
		• Use another SD card.
E31	Download data	• Insert the SD card that was used when the previous update
	inconsistency*	procedure is interrupted.
E32	Download data inconsistency*	• Insert the SD card that stores the correct data.
E33	Version data error	• Store the correct data in the SD card.
E34	Locale data error	• Store the correct data in the SD card.
E35	Machine model data error	• Store the correct data in the SD card.
E36	Module data error	• Store the correct data in the SD card.
E40	Engine program error**	• Store the correct data in the SD card.
		• Replace BICU.
F42	Operation panel program error*	• Store the correct data in the SD card.
L4Z		• Replace the operation panel board.

Cod e	Cause	Necessary Action
E44	Controller program error*	<ul><li>Store the correct data in the SD card.</li><li>Replace the controller board.</li></ul>
E50	Authentication error	• Store the correct data in the SD card.

\*You need to reinstall the program.

If the firmware update program is interrupted (for example, by a power failure), keep the SD card inserted and turn the mains switch off and on. The firmware update program restarts. If you do not do so, the message "Reboot after Card insert" is displayed when you turn the main switch on.

# Test Pattern Print (SP5-902-001)

# **Executing Test Pattern Printing**

- 1. Specify the pattern number and press the OK key.
- 2. Press the copy start key. The copy mode is activated (🖝 "Using SP and SSP Modes" in this section).
- 3. Specify copy settings and press the 🛞 key.
- 4. To return to the SP mode, press the 📚 key.

### **Test Patterns**

Test Patterns Using VCU		
No.	Pattern	
0	(No print)	
1	Vertical Lines (Single Dot)	
2	Horizontal Lines (Single Dot)	
3	Vertical Lines (Double Dot)	
4	Horizontal Lines (Double Dot)	
5	Grid Pattern (Single Dot)	
6	Grid Pattern (Double Dot)	

7	Alternating Dot Pattern
8	Isolated One Dot
9	Black Band (Horizontal)
10	Trimming Area
11	Argyle Pattern (Single Dot)
12	Grayscales (Horizontal)
13	Grayscales (Vertical)
14	Grayscales (Vertical/Horizontal)
15	Grayscales (Vertical/Horizontal Overlay)
16	Grayscales With White Lines (Horizontal)
17	Grayscales with White Lines (Vertical)
18	Grayscales with White Lines (Vertical/Horizontal)

Test Patterns Using IPU		
No.	Pattern	
30	Vertical Lines (Single Dot)	
31	Horizontal Lines (Single Dot)	
32	Vertical Lines (Double Dot)	
33	Horizontal Lines (Double Dot)	
34	Isolated Four Dots	
35	Grid Pattern (Double Dot)	
36	Black Band (Vertical, 1024 Dots)	
37	Grayscales (Horizontal, 512 Dots)	
38	Grayscales (Vertical, 256 Dots)	
39	ID Patch	
40	Cross	

41	Argyle Pattern (128-Dot Pitch)
42	Square Gradation (64 Grades)
43	Square Gradation (256 Grades)
44	Grayscales (Horizontal, 32-Dot Width)
45	Grayscales (Vertical, 32-Dot Width)
47	A4 Gradation Patches 1 (128 Grades)
48	A4 Gradation Patches 2 (128 Grades)
49	Trimming Area (A4)

	Test Patterns Using SBU
No.	Pattern
51	Grid Pattern (double dot)
52	Gray Scale 1 (256 grades)
53	Gray Scale 2 (256 grades)

	Test Patterns Using PCI* <sup>1</sup>
No.	Pattern
61	S2M: Grid Pattern
62	S2M: Argyle Pattern
63	S2M: Argyle Pattern
64	S2M: Argyle Pattern + Image*2
65	S2M: Grid Pattern
66	S2M: Grid Pattern + Image
67	S2M: Argyle Pattern
68	S2M: Argyle Patten + Image
69	Engine: Grid Pattern
70	Engine: Argyle Pattern

<sup>\*1</sup>: The PCI is available to the models with the controller box.

<sup>\*2:</sup> The original image on the exposure glass is printed behind the test pattern.

# SMC Print (SP5-990)

SP5-990 outputs machine status lists.

- 1. Select SP5-990.
- 2. Select a menu:
  - GW machine: 001 All (Data List), 002 SP (Mode Data List), 003 User Program, 004 Logging Data, 005 Diagnostic Report, 006 Non-Default, 007 NIB Summary, 008 Net File Log, 021 Copier User Program, 022 Scanner SP, 023 Scanner User Program, 040 Parts Alarm Counter Print, 064 Normal Count Print, 065 User Code Counter, 066 Key Operator Counter, 067 Contact List Print, 069 Heading 1 print, 071 Heading 3 print, 072 Group List Print, 128 ACC Pattern, 129 User Color Pattern, or 160:ACC Pattern Scan

Vote

- The output given by the menu "Big Font" is suitable for faxing.
- 3. Press the "Execute" key.
  - GW machine: The machine status list is output.
- 4. To return to the SP mode, press the 🖻 key.

# **Power-on Self Test**

The controller tests the following devices at power-on. If an error is detected, an error code is stored in the controller board.

- CPU, ASIC and clock
- Flash ROM
- Resident and optional SDRAM
- NVRAM

PS fonts (if installed)

# Printer Service Mode

## Service Mode Table

SP No.	Description	Function and Setting
1001	BitSw#1 Set	Adjusts bit switch settings. <b>Note:</b> Currently the bit switches are not being used.
1003	Clear Setting	Not used
1004	Print Summary	Prints the service summary sheet (An error log is printed in addition to the configuration page).
1005	Display Version	Displays the version of the controller firmware.

## SP Modes Related to Printer Controller

The following SP modes are located in the copier SP mode. Refer to section 5.1 of the main unit service manual.

SP No.	Description	Function and Setting
5801	Memory All Clear	Resets data for process control and all software counters, and returns all modes and adjustments to their defaults values. returns "Memory Clear" in this chapter for details.
5907	Plug & Play	Selects the brand name and the production name for Windows Plug & Play. This information is stored in NVRAM.
7832	Detailed Display of Self-Diagnostics	Displays the controller self-diagnostic result.

# Scanner Program Mode Table

# Service Table Key

Notation	What it means
----------	---------------

[range / <b>default</b> / step]	Example: [-9 to +9 / <b>+3.0</b> / 0.1 mm step]. The setting can be adjusted in the range ±9, value reset to +3.0 after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press.
italics	Comments added for your reference.
*	This value is stored in NVRAM. After a RAM reset, the default value (factory setting) is restored.
DFU	Denotes "Design or Factory Use". Do not change this value.

SP1		Mode Number	Function and [Setting]
			Displays the scanner NV version.
1001*	5	Scan NV Version	This shows as following: Function name _ Model name _ Version
100/*	-		Selects the compression type for binary picture
1004*	I	Compression lype	processing.
			[1: MH, 2: MR, 3: MMR]
			Creates an erase margin for all edges of the scanned image.
1005*	1	Erase Margin	If the machine has scanned the edge of the original, create a margin.
			[0 to 5 / <b>0mm</b> / 1mm step]
1009*	1	Remote Scan disable	Enables or disables the network TWAIN scanner function.
			<b>0</b> : enable, 1: disable

SP	Number/Name	Function and [Setting]
Compression level (grayscale)		
2021	These SP codes set the compression selected with the notch settings on t Range: 5 (lowest ratio) ←→ 95 (hi	n ratio for the grayscale processing mode that can be he operation panel. ighest ratio)
1	Level 3 (Middle I-Qual)	[5 to 95 / <b>40</b> / 1 / step]
2	Level 2 (High I-Qual)	[5 to 95 / <b>50</b> / 1 / step]

SP	Number/Name	Function and [Setting]
3	Level 4 (Low I-Qual)	[5 to 95 / <b>30</b> / 1/step]
4	Level 1 (Highest I-Qual)	[5 to 95 / <b>60</b> / 1/step]
5	Level 5 (Lowest I-Qual)	[5 to 95 / <b>20</b> / 1 / step]

For the settings of the image quality, see the copier SP-mode table.

# Overview

# Component Layout

# Mainframe



1. Exposure Lamp	20. ID (Image Density) Sensor
2. 1st Scanner	21. Registration Roller
3. CCD (on SBU)	22. Registration Sensor
4. Lens Block	23. Bypass Tray
5. 2nd Scanner	24. Bypass Paper Feed Roller
6. 2nd Mirror	25. Bypass Paper End Sensor
7. 3rd Mirror	26. Bypass Friction Pad

8. Platen Cover Sensor	
9. Exposure Glass	
10. Exit Roller	28. (Main) Friction Pad
11 Evit Sensor	29. Paper Feed Roller
	30. Paper End Sensor
12. Scanner Motor	31. TD (Toner Density) Sensor
13. Hot Roller	32. Bottom Plate
14. Pressure Roller	33 Polygon Mirror Motor
15. Cleaning Blade	
16. OPC Drum	34. Laser Unit
17. Discharge Plate	35. Toner Supply Bottle (or THM)
18 Transfer Poller	36. Toner Collection Coil
	37. Scanner HP Sensor
I 9. Development Koller	

# ARDF



1. Separation Roller	7. Exit Roller
2. Paper Feed Roller	8. Exit Sensor
3. Pick-up Roller	9. Registration Sensor
4. Original Set Sensor	10. Registration Roller
5. Inverter Roller	11. Inverter Sensor
6. Junction Gate	12. Transport Roller

# Electrical Components

# **Electrical Components 1**



1. Lens Block	11. ID (Image Density) Sensor
2. Exposure Lamp	12. Registration Sensor
3. Lamp Stabilizer Board	13. Paper End Sensor
4. Scanner HP Sensor	14. Toner Density Sensor
5. Platen Cover Sensor	15. Bypass Paper End Sensor
6. Scanner Motor	16. Right Door Safety Switch
7. Mechanical Counter	17. Front Door Safety Switch
8. Polygon Mirror Motor	18. Quenching Lamp
9. LD Unit	19. High-Voltage Power Supply Board

10 Eult Senser	20 One metion Daniel De and
IU. Exir Sensor	20. Operation Panel Board

# **Electrical Components 2**



1. Duplex Motor	
2. Exhaust Fan	7. Paper Feed Clutch
	8. Toner Supply Clutch
5. F50	9. Bypass Feed Clutch
4. Controller Board (GW)	10 Provistration Clutch
5. BICU	
6. Main Motor	11. Fusing Solenoid

# ARDF



# **Paper Path**



- 1. Original Registration Sensor (Document Feeder)
- 2. Exit Senor (Document Feeder)
- 3. Inverter Sensor (Document Feeder)
- 4. Original Set Sensor (Document Feeder)
- 5. Exit Sensor

- 6. Paper Path Sensor
- 7. Registration Sensor
- 8. By-pass Paper End Sensor
- 9. Paper Feed Sensor (Optional Tray)
- 10. Paper End Sensor (Optional Tray)
- 11. Paper End Sensor

# **Drive Layout**

# Mainframe



- 1. Scanner Motor
- 2. Duplex motor
- 3. Exit Roller
- 4. Toner Bottle Clutch
- 5. Main Motor
- 6. Paper Feed Clutch

- 7. Bypass Feed Clutch (By-pass Tray)
- 8. Registration Clutch
- 9. Developer Driver Gear
- 10. Drum Drive Gear
- 11. One-way Gear (Duplex Unit)
- 12. Fusing Drive Gear

## ARDF



5. DF Feed Clutch

- 10. Registration Roller
- DF Feed Motor: Drives the feed, separation, pick-up, and transport and inverter rollers.
- DF Transport Motor: Drives the registration and exit rollers.



# **Block Diagram: PCBs and Components**

#### b284d928

This table lists available units and components for each model.

Model	Document Feeder	Printer/ Scanner	Fax*	Controller
Fax Model (B284)	Standard	Optional	Standard	GW controller
SPF Model (B288)	Standard	Standard	Standard	GW controller

This table lists available interfaces for the Fax/SPF models.

	B284/B288
Ethernet	Standard
USB 2.0	Standard

# **Main PCBs**

# SBU (Sensor Board Unit)



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The SBU receives analog signals from the CCD and converts these into digital signals used for image processing.

## Buffer

Used for driving the CCD. Includes a 3V/5V converter (converts the CALDA 3V drive signal to 5V).

# CCD

Converts light reflected from the original into an electrical signal. This machine uses a color CCD. Scan density is 600 dpi. Pixel size is 7 x 7 microns. Maximum pixel rate is 10 Mhz.

# Amplifier

Inverts and amplifies the electrical signal from the CCD.

# **Copy Process**

Overview



The following is a brief overview. For more detailed information about each process, refer to the Core Technology manual.

#### 1. Exposure

A xenon lamp [A] exposes the original  $\rightarrow$  the CCD [B] converts reflected light to analog data signal  $\rightarrow$  the BICU converts analog signal into digital data, processes it, stores it in memory the  $\rightarrow$  BICU retrieves the data from memory and uses it to drive the laser. (Each original is scanned once only.)

#### 2. Drum Charge

In the dark, the drum charge roller [C] imparts a negative charge to the OPC drum. (The roller is kept clean by cleaning roller [D].)

### 3. Laser Exposure

The laser unit, controlled by the BICU, fires a beam [E] at the drum, drawing the latent electrostatic image on the drum surface. (Exposure by laser dissipates the local negative charge.)

#### 4. ID (Image Density) Sensor

The ID sensor [F] periodically measures (a) drum surface reflectivity, and (b) reflectivity of a test pattern image drawn on the drum. The BICU uses ID sensor data to adjust charge-roller voltage, and uses both ID sensor data and TD sensor [J] data to adjust the toner density.

#### 5. Development

Augers at [G] carry developer (carrier/toner mix) to the magnetic development roller [H]. The roller creates a developer "brush" that rubs against the drum, causing toner to adhere to the electrostatic image. (The doctor blade [I] restricts the height of the "brush." The TD (toner density) sensor [J] measures the ratio of toner in the developer.)

#### 6. Image Transfer

Paper moves between the drum and the transfer roller [K]. A positive charge applied to the transfer roller pulls toner off the drum and onto the paper, while also attracting the paper itself.

#### 7. Paper Separation

Paper is separated from the drum as a result of (a) electrostatic attraction of paper toward transfer roller, and (b) a high AC voltage applied to the discharge plate [L].

#### 8. Cleaning

The cleaning blade [M] scrapes remaining toner from the drum, and the toner collection coil [N] retrieves this toner.

#### 9. Quenching

Light from the quenching lamp [O] neutralizes the charge on the drum surface.

# Scanning

# Overview



The HP sensor [1] senses when the scanner is at home position, ready to begin a scan.

To copy: the original is illuminated by the xenon exposure lamp [2]. The 1st, 2nd, and 3rd mirrors direct the reflected light to the lens block, where the lens directs it to the CCD.

The 1st scanner includes a reflector (not shown) that helps reduce shadows on pasted originals.

### **Scanner Drive**



The scanner motor [A] (a stepper motor) drives a gear that turns a small drive belt [B], driving the scanner drive shaft [C]. Pulleys [D, E] on the ends of the shaft drive timing belts [F] and [G], driving the 1st scanner [H]. The first scanner is secured to timing belts [I] and [J], which drive the 2nd scanner [K] through the 2nd scanner's pulleys.

During scanning in book mode, the 2nd scanner moves at half the speed of the 1st scanner. Scanner speed increases for reduction printing, and drops for enlargement printing—generating reduction or enlargement in the sub-scan dimension. (The BICU uses image processing to generate the corresponding reduction or enlargement in the main-scan dimension.)

You can adjust magnification in the sub-scan direction using SP4-101 (which will adjust the motor speed). You can adjust in the main scan direction using SP4008.

For information about scanning in DF mode, refer to the "ARDF" section in this manual.
## **Image Processing**

### Overview



The scanned image is processed by the following modules.

#### In the SBU

- CCD: Converts the reflected light from the image into an analog signal. Driven by the CALDA.
- Amp: Amplifies the analog signal and sends it to the AFE on the BICU.

#### In the BICU

- IPU: Auto shading, filtering, magnification, scanner gamma correction, ID gamma correction
- VCU: Printer gamma correction, LD print timing control and laser power PWM control
- FCI (inside the VCU): Smoothing
- The data then moves to the LD drive board in accordance with timing controlled by the BICU.
- CALDA: CCD drive, AFE drive, Data conversion, Offset correction
- AFE: Analog digital converter, Gain adjustment, Offset adjustment (Analog Front End)

## Image Processing Path



The image data from the SBU goes to the IPU (Image Processing Unit) on the BICU board, which carries out the following processes on the image data:

- Auto shading
- White/black line correction
- ADS
- Scanner gamma correction
- Magnification (main scan)
- Filtering (MTF and smoothing)
- D gamma correction
- Binary picture processing
- Error diffusion
- Dithering
- Video path control
- Test pattern generation

The image data then goes to the GW controller.

#### Note

• The IPU and VCU are contained in the same IC (called SCRATCH) on the BICU.

## **Original Modes**

The machine has 10 original modes. There are two text modes, three photo modes, and five "special" modes.

The original mode key on the operation panel has two settings, text and photo. With the default settings, the machine uses "Normal Text (Text 1)" when the Text indicator is lit, and uses "Photo Priority (Photo 1)" when the Photo indicator is lit.

#### Selection of Original Modes, for Copying

The customer can allocate different modes to the Text and Photo indicators with User Tools – Copier Features – Image Adjustment. Note that the Text indicator does not have to be allocated to a Text mode and the Photo key does not have to be allocated to a Photo mode. For example, the Text indicator can be allocated to Photo 3, and the Photo indicator can be allocated to Special 4.

If the user wishes to customize one of the original modes, the technician can change the settings using SP 4922 to SP 4942. Refer to "SP Modes for Each Image Processing Step". However, only one of the original modes can be customized at any one time.

#### Selection of Original Modes, for Fax

Before scanning, the user selects Text or Photo at the operation panel.

- If Text: The machine uses Text Sharp mode, unless a serviceperson has changed the mode to Dropout mode.
- If Photo: The machine uses the photo mode selected by User Parameter switch 10 bit 7 (where "0" selects Photo Normal and "1" selects Photo Smooth).

If the user is having a problem with text-mode quality, please try to resolve the problem by adjusting the settings for Text Sharp. Do not try to solve the problem by changing the mode to Dropout. Dropout mode is designed for very specific uses only (for machines that are almost exclusively used to send preprinted forms with unneeded background color), and is rarely appropriate outside of Japan. The text mode used by the machine is determined by the value of SRAM address 410D48h. To change the text mode, you must use Fax SP (SP2-101-001) to manually change the value at this address. To change to Dropout mode, write OAh into this address. To change back to Text Sharp mode, write 07h into this address.

#### **Original Modes: Copying**

Original Type	Mode	Targeted Original Type
Text	Normal	Normal text originals

	Sharp	Newspapers, originals through which the rear side is moderately visible as faint text.	
	Photo priority	Text/photo images which contain mainly photo areas	
Photo	Text priority	Text/photo images which contain mainly text areas	
	Photographs	Actual photographs	
	Unneeded background	Originals through which the rear side is extremely visible (or have a colored background) with faint text. Also for originals with very grainy backgrounds (some newspapers) and faint text.	
	Colored text	Originals with colored text and lines.	
Special	Normal Pixel Photo	Photo images created by dither patterns (dots visible), such as newspaper photos – normal resolution.	
	Coarse Pixel Photo	Photo images created by dither patterns (dots visible), such as newspaper photos – coarse resolution.	
	Preserved Background (Normal Text)	Use instead of Normal Text if, e.g. an embedded white area causes Auto Image Density to initially remove the surrounding (darker) background but leave the rest. Use if the customer wishes to keep this background.	

## Original Modes: Fax

Original Type	Mode	Targeted Original Type
Text	Text shrap	For newspapers or other originals through which text on the rear side is moderately visible.
	Dropout	Stronger removal of dropout colors.
Photo	Photo Smooth	Photos with visible pixels (newspaper photos, etc.)
	Photo Normal	Normal photos

NOTE:The	gray area means the	setting canno	ot be changed	d using SP mo	de.							
		Te	ixt		Photo				Special			
		Normal	Sharp	Photo Priority	Text Priority	Photographs	Unneeded Background	Colored Text	Normal Pixel Photo	Coarse Pixel Photo	Preserved Background	Note
SBU	ADS	AC	SC		ADS		AL	SC				
I												
Shading Correction	Shading Line Correction	Ena	bled		Enabled				Enabled			
	White Line Correction	Ena	bled		Enabled				Enabled			SP4-941
	Black Line Correction	Enabled	(DF only)		nabled (DF only	0			Enabled (DF only			SP4-942
	Scannerg Correction	T <sub>4</sub> (Reflection R <sub>6</sub>	ext atio ID Linear)	Photo (Density Linear)	Text (Refreicion Ratio ID Linear	Photo (Density Linear)	Text (Reflect Linu	ion Ratio ID sar)	Photo (Density Linear)	Photo (Density Linear)	Text (Reflection Ratio ID Linear)	SP4-922
	Small Smoothing Filter	Weak	Weak	Normal	Normal	Weak	Strong	Weak			Weak	Connected with MTF filter (Edge)
I												
Magnification	Main Scan Magnification	Ena	bled		Enabled				Enabled			
	Mirroring	Enabled	(DF only)	Ш	nabled (DF only	()			=nabled (DF only			
	Side-to-side Registration (Left Side)	Ena	bled		Enabled				Enabled			
I												
Filtering	MTF Filter (Edge)	Normal	Strong	Weak (All Area)	Normal	Weak (All Area)	Strong	Normal			Normal	SP4-930
	MTF Filter (Solid)		Normal									SP4-931
	MTF Filter (Low ID)	Normal	Normal		Normal		Ō	mal			Normal	SP4-932
	Smoothing Filter											Connected with MTF filter (Edge)
	Independent Dot Erase	Ŵ	∋ak		Weak		Strong	Weak			Weak	SP4-928
	Line Width Correction	Disa	bled		Disabled		Disabled	Thick			Disabled	SP4-927
I												
Graduation	D g Correction	Normal	Sharp	Photo Priority	Text Priority	Photographs	Sharp	Color Text	Normal Pixel Photo	Coarse Pixel Photo	Normal	SP4-923
I												
Image Correction	Graduation	Error Diffusion	Binary		Error Diffusion		Binary	Error Diffusion	Dithering (105 Lines)	Dithering (53 Lines)	Error Diffusion	SP4-926 (Error diffusion only)
I												
Path Control	Video Path Control	Ena	bled		Enabled				Enabled			
I												
VCU	FCI		Enabled				Enabled					
	Edge Correction	Enabled			Enabled				Enal	bled		
	Printerg Correction	Ena	bled		Enabled				Enabled			

## Image Processing Steps for Each Mode

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#### Mode Adjustments

As a service person, you can use SPs 4-922 to 4-932 to further customize each of these original modes to meet specific user requirements. If the user is experiencing a problem with copy, however, SP-based adjustment should be the last step. Always proceed as follows:

1. First, try changing the density notch setting.

If that doesn't resolve the problem, then...

2. Try selecting a different original mode.

If that also doesn't resolve the problem, then...

3. Try customizing the relevant original mode with SPs.

#### To customize...

First use SP4-921 to select the original mode that you wish to customize. Then enter the relevant customizations using SP4-922 to SP4-932. Refer to Section 5 for general information about the adjustments you can make .

Note the following points:

- All SP settings are relative to the selected original mode. If you set the SP value to "O", the machine will use the default processing for that mode.
- If you enter an SP customization setting for an original mode that does not support that customization, the entry will have no meaning.

## Laser Exposure

## Overview



[A]: LD Unit	[E]: Toroidal Lens
[B]: Synchronization Detector Lens	[F]: Polygon Mirror Motor
[C]: OPC Drum	[G]: Cylindrical Lens
[D]: Shield Glass	[H]: LD Shutter

- The LD unit controls both the laser output and the laser synchronization mechanism.
- The machine cuts the power to the LD drive board when the front door or right door is opened.
- The LD shutter blocks the laser-beam path if the toner bottle holder or THM (toner hopper magazine) is unlatched.

## BICU +5VS LD LD PD PD +5VE Vcc +24V PSU M61880FP GND LD Drive Board +5VS REG 777 Front/Right Door b130d901 Switches

LD Safety Switches

Safety switches are installed at the front and right doors to ensure technician and user safety and to prevent the laser beam from accidentally switching on during servicing. Opening of the front or right door opens the corresponding switch, cutting the power supply (+5VS) to the laser diode.

The safety switches are installed on the +24V line coming from the power supply unit (PSU). The +24V supply must pass through these switches before converting into the +5VS power that drives the laser.

# Photoconductor Unit (PCU)

## Overview



1. Cleaning Blade	6. TD (toner density) Sensor
2. Toner Collection Coil	7. Mixing Auger 1
3. OPC Drum	8. Doctor Blade
4. Development roller	9. Charge Roller
5. Mixing Auger 2	10. Cleaning Roller

## **Drum Drive**



The main motor [A] drives the drum [B] through a series of gears and the drum drive shaft [C].

## **Drum Charge**

### Overview



The drum charge roller [A] remains in contact with the drum, producing a charge of -900 V on the drum surface.

The high voltage supply board [B] supplies a negative charge to the charge roller via wire [C] and spring [D]. The default base (uncorrected) charge is –1650V. You can adjust this base charge using SP20011. The actual charge is corrected in accordance with the ambient environment, as described in the next section.

## **Charge Roller Voltage Correction**



#### **Correction for Ambient Environment**

#### b262d552

Efficiency of voltage transfer from the charge roller to the drum decreases as ambient temperature and humidity rise. Accordingly, the charge roller voltage must be made more negative at higher temperature and humidity.

#### When Correction is Made

- At initial warm-up (following power-on by main switch)
- During warm-up on exit from low-power or auto-off mode, if that mode has been in effect for at least 4 hours

#### Note

• Correction can be disabled with SP2-927.

#### How Correction is Made

Immediately after creating the ID sensor pattern [A] used for toner density control ( $\checkmark$  "Toner Density Control"), the machine generates another pattern [B] for charge voltage correction by intensifying the development bias ( $\checkmark$  "Development Bias") to -600 V. The laser remains off, but a small amount of toner moves to the drum because of the slight charge difference between the drum and development roller. The ID measures the pattern's density (Vsdp) and the bare drum voltage (Vsg); the FCU compares the difference and adjusts the roller voltage accordingly.

- If Vsdp/Vsg > 0.95: Change charge roller voltage by +50 V (less negative).
- If Vsdp/Vsg < 0.90 = Change charge roller voltage by -50 V (more negative).

#### Note

• The current ID sensor readings can be viewed using SP2-221.



A cleaning roller [A] removes toner and debris that the roller picks up from the drum.

## **Detection of New PCU**

Before starting to use a new PCU, the machine must (a) agitate the toner/developer mix, (b) initialize the TD sensor, and (c) initialize the PCU counter. This machine automatically detects the presence of a new PCU and carries out these operations.

### At time of copier installation

The first time the machine is turned on following installation, a factory-set flag informs the machine that the PCU has not yet been initialized. The machine carries out the necessary initialization automatically.

#### When a replacement PCU is installed

Replacement PCUs have a special mechanism that trips when they first start, informing the machine that a new PCU has been installed. (Preinstalled PCUs do not include this mechanism, and have two empty pins in their connector.)



Replacement PCU ships in state [A]. Slight rotation of PCU gear [B] at power-on releases plate [C], breaking the circuit and informing the FCU that the new PCU is a replacement unit.

## Development

## Overview



The development section consists of the following parts.

1. Development Roller	4. TD Sensor
2. ID Sensor	5. Mixing Auger 1
3. Mixing Auger 2	6. Doctor Blade

The two mixing augers mix the developer (carrier/toner mix). The TD (toner density) sensor and the ID (image density) sensor are used to control the copy image density.

## **Development Bias**



Black areas of the latent image on the drum are at low negative charge (about  $-140 \pm 50$  V), with white areas at high negative charge (about -900 V).

To attract negatively charged toner to black areas, the high voltage supply board [A] applies a (default) bias of -600 V to the development roller [B]. The bias voltage can be adjusted with SP2-201-1.

## **Toner Supply**



When toner bottle [A] is pushed in, shutter [B] is pushed open by the PCU body. Pressing in lever [C] pulls off toner bottle cap [D], which is held by chuck [E]. When clutch [F] turns the bottle, the spiral grooves push toner out at [G], and the turning Mylar blades [H] push this toner through slit [I] into the developing unit. Toner collection coil [J] simultaneously recycles toner retrieved from the OPC drum. The recycled toner slides down chute [K] and enters the developing unit through slit [L].

## **Toner Density Control**

#### Overview

Vts:	TD sensor initial setting (1.25V). (Used as reference voltage when Vref is not available.)
Vref:	Toner supply reference voltage (calculated value; periodically updated)
Vt:	Actual output from TD sensor
Vsg/Vsp:	Values from ID sensor, where Vsp is the voltage of a test pattern (the "ID sensor pattern"), and Vsg is the voltage of the bare drum

Toner concentration in the developer is controlled using the following values:

Toner is added to the development unit if Vt is higher than the reference voltage.

#### **Reference Voltage**

Vts is used as the reference if the PCU has just been installed (since Vref has not yet been calculated) or if ID sensor correction has been disabled with SP2-927. In all other cases, Vref is used as the reference.

Toner Density Sensor Initial Setting

The Vts for this machine is 1.25 V. During TD sensor initialization (after installation of new PCU), the machine adjusts the sensor so that it reads out 1.25V.

Toner Concentration Measurement

The machines checks concentration every copy cycle, by comparing Vt against the reference voltage.

Vsp/Vsg Detection

An ID sensor pattern is made on the drum by the charge roller and laser diode. The ID sensor detects the pattern density (Vsp) and the density of the bare drum (Vsg).

Detection is carried out at the same time as (and immediately before) charge-roller voltage detection ( "Charge Roller Voltage Correction").

#### Note

• Use of ID sensor control can be disabled with SP2-927.

Calculation of Vref

Vref is calculated based on:

- ID sensor output (Vsp/Vsg)
- Existing reference voltage (Vref or Vts) Vt

Toner Supply Determination

The machine supplies toner if Vt exceeds the reference voltage.

#### **Vote**

• Current Vt and reference voltage values can be viewed using SP2-220. Other ID sensor values can be viewed using SP2-221.

Toner Clutch ON Time

Calculation is based on:

- Vt
- Reference voltage RV (= Vref or Vts)
- S (TD sensor's sensitivity coefficient)

Level	Decision	Motor On Time (seconds)
1	$RV < Vt \le RV + S/16$	t
2	$RV + S/16 < Vt \le RV + S/8$	1.5t
3	$RV + S/8 < Vt \le RV + S/4$	2t
4	$RV + S/4 < Vt \le RV + S/2$	3t
5	$RV + S/2 < Vt \le RV + 4S/5$	4t
6	$RV + S > Vt \ge RV + 4S/5$	5t
7	$Vt \ge RV + S$	ót

#### Note

• The default value for t is 0.6. The value can be changed using SP2-922.

## Toner Supply If Sensor Reading is abnormal

### **ID Sensor**

Any of the following is considered abnormal:

•  $Vsg \le 1.65$  (when Vsg is read)

- Vsg < 2.31 (at maximum power)
- Vsp ≥ 1.65
- $Vt \ge 2.64 \text{ or } Vt < 0.20$

Current readings can be viewed using SP2-221.

#### **TD Sensor**

The reading is considered abnormal if TD < 0.20 V or TD > 2.64 V. Abnormal readings 10 times in succession will generate SC 390.

## Detection of Toner Near End and Toner End

#### Toner Near End detected when either of the following occurs...

- Vt is at level 6 (see above table) five times in succession
- Vt > 1.85 five times in succession

#### Toner End detected when any of the following occurs....

- (Vt is ≥ level 6 and Vt > 1.85) "n" time in succession, where "n" is 50 by default but can be changed to 20 using SP2-213. (Note that "n" corresponds to the number of sheets that can be printed before Toner Near End changes to Toner End.)
- Vt is at level 7 three times in succession.
- Vt > 2.00 three times in succession



## **Drum Cleaning and Toner Recycling**

- Cleaning blade [A] scrapes remaining toner from the drum after image transfer. Toner piles up on the blade.
- Toner collect coil [B] transports toner from pile and drops it onto chute [C], where it slides down into the development unit through a slit located at [D].
- At the end of each copy job, the drum turns about 3 mm in reverse to help clear toner and other debris from the edge of the cleaner blade.

## **ARDF** Operation

## **Pick-Up and Separation**

The ARDF uses an FRR (feed & reverse roller) system. Setting paper moves the feeler, causing the original set sensor to inform the CPU that the ARDF is ready to feed. Press  $\textcircled{O} \rightarrow$  short time lag  $\rightarrow$  DF feed clutch engages  $\rightarrow$  DF motor starts. The motor drives the DF pickup roller, DF feed roller, DF separation roller, and transport roller. The pickup roller drives the top sheet(s) between the feed and separation roller, where the top sheet is separated and fed to the transport rollers.

## **Clutch Operation**

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The DF feed clutch is provided to stop feeding when the original is fed to the inverter tray in double-sided mode. If the DF feed clutch does not stop the pick-up, feed and separation rollers in double-sided mode, the next original is fed while the first original is at the inverter tray and an original jam occurs.

## **Original Transport and Exit**

## Single-Sided Originals



The feed motor feeds the separated original to the registration roller [A]. A short time after an original reaches the registration sensor [B], the DF feed motor stops briefly, the scanner moves to DF scan position, and the white peak is read. The DF feed motor and DF transport motor then start and the sheet is scanned. After scanning, the original is fed out by the exit roller [C].



#### **Double-Sided Originals**

After an original has been fed to the registration sensor [B] by the transport roller [A], the DF feed motor stops briefly. After the scanner has moved to DF scan position, and the white peak has been read, the front side of the original is then scanned.

When the exit sensor [C] detects the leading edge of the original, the junction gate solenoid is activated and the junction gate [E] opens. The original is then transported towards the inverter table.

Soon after the trailing edge of the original passes the exit sensor, the junction gate solenoid switches off and the junction gate [E] is closed. When the original has been fed onto the inverter table, the feed and transport motors stop. After that, the feed motor rotates in reverse and the original is fed to the exit roller [D] by the inverter roller [F]. At this time, the feed motor stops briefly to adjust the original skew.

After adjusting the original skew, the original is fed again by the exit roller [D] and registration roller [B] to the scanning area (where the reverse side will be scanned).



The original is then sent to the inverter table again to be turned over. This is done so that the duplex copies will be properly stacked front side down in the exit tray [G] in the correct order.

## **Original Set Sensor**

During one-to-one copying, copy paper is fed to the registration roller in advance (while the original is still being scanned), to increase the copy speed. The original set sensor monitors the stack of originals in the original tray, and detects when the trailing edge of the last page has been fed in. The main CPU then stops the copier from feeding an unwanted extra sheet of copy paper.

## **Paper Feed**

## Overview



## Paper Feed Drive Mechanism

### **From Paper Tray**



Main motor [A] drives gears on the registration clutch [B] and the paper feed clutch [C]. These clutches transfer drive to the registration roller [D] and paper feed roller [E]. The BICU controls clutch timing based on input from the registration sensor.

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## From 100-Sheet Bypass Tray



Main motor [A] drives gear on registration clutch [B] and bypass feed clutch [F]. The bypass feed clutch drives the bypass feed roller [G]. Again, the BICU controls clutch timing based on input from the registration sensor.

## From 1-Sheet Bypass Tray

The user inserts the sheet directly up to the registration roller [D]. Main motor [A] drives the gear on registration clutch [B], causing the registration roller to turn and feed the sheet.

## Paper Feed and Separation



The machine uses a friction-pad feed system.

Friction pad [A] (in paper tray)

## Paper Lift Mechanism



When tray is pushed in: Projection [B] on frame pushes rounded slider [C] in against spring [D], retracting the latch [E]. Spring [F] pushes the plate up.

## Paper End Detection

## **Main Tray**



When paper runs out, feeler [A] drops into cutout, activating paper end sensor [B].

## 100-Sheet Bypass Tray



When paper runs out, feeler [C] drops into cutout, activating the bypass paper end sensor [D].

## **Paper Registration**



The BICU uses input from registration sensor [A] to control clutch timing and detect misfeeds. Registration clutch timing is controlled to eliminate skew (by stopping the paper briefly as it reaches the roller, so that it buckles). The amount of buckle can be adjusted with SP1-003.



## **Image Transfer and Paper Separation**

The transfer roller [A] is pressed against the OPC drum [B]. The high-voltage power supply board [C] supplies a positive current to the transfer roller, attracting the toner from the drum onto the paper. The current is set in accordance with the paper's type, size, and feed tray.

Separation of the paper from the drum is aided by the drum's own curvature and by a high AC voltage applied to the discharge plate [D].

The drum drives the transfer roller directly by gears [E], [F].

## Image Transfer Current Timing

There are two transfer current levels: low and high.

- 1. Low level: Before image transfer starts, the high voltage supply board supplies +10µA to the transfer roller. This prevents the transfer roller from attracting any positively charged toner on the drum surface.
- 2. High level: During image transfer, the high voltage supply board supplies a high level current (see the table) to the transfer roller. This enables the transfer roller to attract toner onto the paper.

When the trailing edge of the paper has passed the transfer roller, the high voltage supply board stops supplying the transfer current. If the copier is printing more pages, the high voltage supply board supplies the low level current.

You can adjust these levels ( SP2-301). When increasing a transfer current level, use caution:

- Increasing a transfer current level may produce ghost images-some part of image near the leading edge reappears in other part of the page.
- Increasing a transfer current level might damage the OPC drum.

The table lists the default settings and SPs.

Job type	Amp	SP
Normal paper	0 μΑ	SP2-301-001
Thick paper	0 μΑ	SP2-301-002
Duplex copying	0 μΑ	SP2-301-003

### **Transfer Roller Cleaning**

Toner may transfer to the roller surface following a paper jam or if the paper is smaller than the image. Periodic cleaning of the roller is required to prevent this toner from migrating back to the rear of new printouts.

The machine cleans the roller at the following times:

- After initial power on.
- After clearing of a copy jam
- At the end of a job, if at least 10 sheet have been printed since the last cleaning

The high voltage supply unit first supplies a negative cleaning current (about  $-4 \,\mu$ A) to the transfer roller, causing negatively charged toner on the roller to move back to the drum. It then applies a positive cleaning current (+5  $\mu$ A) to the roller, causing any positively charged toner to migrate back to the drum.

The cleaning current can be adjusted using SP2-301-4.

## Image Fusing and Paper Exit

## Overview



- 1. Exit Roller
- 2. Paper Path Sensor
- 3. Hot Roller Strippers
- 4. Pressure Spring
- 5. Pressure Roller

- 6. Fusing Lamp
- 7. Hot Roller
- 8. Thermoswitch
- 9. Thermistor
- 10. Exit Sensor

### **Hot Roller Drive**



Left: Contact-release solenoid off Right: Contact-release solenoid on

#### Mechanism

The main motor [A] drives the hot roller [D] through a gear train. One of the gears in the gear train is the contact-release gear [B]. This gear is linked to the contact-release solenoid [C]. When the contact-release solenoid is on, it separates the contact-release gear from another gear [E] in the gear train. As a result, the drive power of the main motor is not transmitted to the hot roller.

The drive power of the main motor is not transmitted to the paper exit roller [F]. This roller is driven by the duplex motor.

#### Contact/Release Control

The contact-release solenoid turns on when the following conditions are all met:

- The copier is warming up the hot roller.
- The hot roller temperature is 16°C or higher.
- The fusing idling (SP1-103-001) is "No."

This control is based on the following facts:

- The copier takes a shorter time to heat the hot roller when the roller is not turning.
- The temperature of the hot roller surface may become uneven when the hot roller temperature is low and the roller is not turning.

## **Pressure Roller**



The pressure springs [A] constantly press the pressure roller against the hot roller. As the default, the springs are positioned at the lower notch [B]. If necessary, pressure can be decreased by changing the springs to the upper notch [C].

## **Pressure Release**



When the right door is opened, part [A] (on each side) pulls open catch [B] (on each side), releasing pressure on the pressure roller, so that it can turn freely to allow removal of jams. When the right door is closed, part [C] pushes catch [B] closed, restoring normal pressure.

## Separation



The hot roller stripper pawls [A] prevent paper from sticking to the hot roller.

## **Fusing Temperature Control**

### **Control Process**

The BICU references the signal from the thermistor every second. The BICU turns the fusing lamp on and off based on the current temperature and the "target temperature".

#### **Target Temperature**

The table lists the target temperatures. You can change these targets by the listed programs.

For the fusing temperature transition during copying, see (below).

Status/Condition	Temperature	SP
Warming up	160°C	SP1-105-001

Ready	150°C	SP1-105-003
Copying	160°C	SP1-105-005
Low level	60°C	SP1-105-007
Thick paper	165°C	SP1-105-009

#### **Temperature Transition**

When the fusing unit is cool, the fusing temperature should be higher to ameliorate the fusing quality. During copying, the fusing temperature is controlled in four phases as listed in the table. "Default" is the target fusing temperature of SP1-105-005 ( $160^{\circ}$ C). "Example" is the target fusing temperature of the case where you specify " $165^{\circ}$ C" in SP1-105-005.

	Start key pushed (①)	For one second (②)	30 seconds later (3)	60 seconds later (④)
Default	175°C	170°C	165°C	160°C
Example	180°C	175°C	170°C	165°C
Difference from SP1-105-005	+15°C	+10°C	+5°C	_

Copy SP1-105-005 adjusts the fusing temperature of the fourth phase (④). You cannot directly adjust the fusing temperature in the first three phases (① through ③). They are always higher than the fourth phase (④) by 15°C, 10°C, and 5°C respectively.
## **Overheat Protection**



The BICU references the fusing temperature through the thermistor [A]. The copier prevents overheating as listed below. Normally, Feature 1 is effective in preventing overheating. Features 2 through 3 are fail-safe features.

### Feature 1:

The BICU turns off the fusing lamp when the fusing temperature is too high.

### Feature 2:

The BICU disables the machine operation when the thermistor detects an abnormal temperature transition. In a case like this, the copier displays one of these codes: SC543, SC544, SC545, or SC546.

If the fusing temperature is too low, SC542 is displayed.

### Feature 3:

The BICU disables the machine operation when the thermistor does not normally work. In a case like this, the copier displays SC541.

### Feature 4:

The thermoswitch near the center [B] cuts power to the fusing lamp at 160°C; the thermoswitch near the end [C] cuts power to the fusing lamp at 170°C. These thermoswitches and the fusing lamp are on the same circuit.

### Note

• Thermoswitch temperature is somewhat lower than the fusing temperature.

• The thermoswitch near the center does not necessarily work earlier than the other thermoswitch. The ends of the hot roller can be much hotter than the center when, for example, paper of a small size is continuously going through the fusing unit.

# Feature 5:

The BICU disables machine operation when the exhaust fan is not functioning normally. In a case like this, the copier displays SC590. Note that defective exhaust fans may cause overheating.

# **Duplex Unit**

# Important Components



The following components play important roles in duplex printing:

- The duplex motor drives the exit roller [A] and duplex roller [D].
- One of the paper guides on the fusing unit [C] is linked to the paper path sensor [B].

The bypass tray cannot be used for duplex printing.

# **Duplex Printing Process**



The main steps of the duplex printing process are as follows:

- 1. The controller starts to operate the main motor and duplex motor.
- 2. The hot roller [A] and pressure roller [B] transport the paper to the paper guide [C].
- The leading edge of the paper pushes the paper guide; the paper guide turns the paper path sensor [D] on.
- 4. When the leading edge of the paper reaches the exit roller [E], the exit roller transports the paper.



- 5. When the trailing edge of the paper exits from the paper guide, the paper guide drops to the original position [F] and turns the paper path sensor [G] off.
- 6. The controller starts to operate the duplex motor in reverse; the exit roller [H] turns in reverse, transporting the paper to the duplex roller.
- 7. The paper goes over the paper guide and reaches the duplex roller [I].
- 8. The duplex roller transports the paper into the duplex unit. The paper goes through the unit.



- 9. When the leading edge of the paper reaches the registration sensor [J], the controller stops the duplex motor. The duplex roller holds the paper in the duplex unit.
- 10. When the OPC drum [K] gets ready for printing, the controller restarts the duplex motor. The duplex roller transports the paper.
- 11. The duplex roller keeps transporting the paper until the paper reaches the fusing unit.
- 12. The hot and pressure rollers transport the paper to the paper guide.



- 13. The leading edge of the paper pushes the paper guide [L]; the paper guide turns the paper path sensor [M] on.
- 14. The controller changes the direction of the duplex motor. The exit roller [N] changes the direction of its rotation, transporting the paper to the copy tray.

# **Energy Saver Modes**

This section explains the energy saver modes.



The machine has three energy-saver modes: the Low Power Mode, the Transit Mode, and the Night/Off Mode. The Transit Mode continues for about two seconds (probably, the user does not recognize this mode when it occurs). The table lists the status of several components.

	Operation panel	Engine	Exhaust fan
Operating Mode*	On	On	On
Low Power Mode	Off	On	Off
Transit Mode	Off	On	Off
Night/Off Mode	Off	Off**	Off

\* The "Operating Mode" here refers to all the modes (and status) other than the Low Power Mode and Night/Off Mode. Actual power consumption (during the Operating Mode) depends on job status and environmental conditions.

\*\* The SRAM is alive and backs up the engine controller.

# AOF

When AOF is off, the engine controller is unable to start the Night/Off Mode. The user should keep AOF on ( $\textcircled{Mm} \rightarrow$  System Settings  $\rightarrow$  Key Operator Tools  $\rightarrow$  AOF).

#### Timers

The engine controller references the Energy Saver Timer to start the Low Power Mode, and references the Auto Off Timer to start the Night/Off Mode. The user can set these timers ( $\textcircled{Mm} \rightarrow$  System Settings  $\rightarrow$  Timer Settings).

The Energy Saver Timer and the Auto Off Timer start at the same time (t0) when the machine ends all jobs or when the user ends all manual operations. Note that the Auto Off Timer does not wait for the Energy Saver Timer. If the user specifies a larger value in the Energy Saver Timer, the Auto Off Timer expires earlier than the Energy Saver Timer. In a case like this, the Low Power Mode is not activated. Instead, the engine controller starts the Night/Off Mode when the Auto Off Timer expires.

Specified value	Low Power Mode	Night/Off Mode
Energy Saver Timer > Auto Off Timer	Cannot start	Can start
Energy Saver Timer = Auto Off Timer	Cannot start	Can start
Energy Saver Timer < Auto Off Timer	Can start	Can start

## Recovery

Any of the following operations brings the machine back to the Operating Mode:

- The power switch is pressed.
- Originals are set on the document feeder.
- The platen cover is opened.
- The controller receives a job over the network or the telephone line.
- An SC code is generated.

# **GW** Controller

## Overview



This machine uses the GW architecture. To enable printer features, install the printer option SD Card in the controller.

#### Main components:

- CPU: TOSHIBA TMPR4955BFG-300
- CHARANGO: GW architecture ASIC. It controls all the functions of the controller board.
- Flash ROM: 16 MB Flash ROM for the system program
- SDRAM: On board 128 MB, DIMM 256 MB (resident)
- NVRAM: Stores the controller settings
- LAN interface
- USB 2.0 interface
- SD Card: Printer/Scanner program

#### **Optional components:**

- PostScript3
- Bluetooth interface
- Wireless LAN interface
- IEEE1284 interface

# **Controller Functions**

#### Paper Source Selection



#### b284d502

The Tray Priority setting determines the start of the tray search when the user selects "Auto Tray Select" with the driver.

The machine searches for a paper tray with the specified paper size and type.

When no tray contains paper that matches the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

The Tray Priority setting can be specified using the Paper Size Setting in the user tools.

(User Tools/ System Settings/ Paper Size Settings)

### Note

• The by-pass tray is not part of the tray search.

#### Tray Lock

If Tray Lock is enabled for a tray, the controller skips the "locked" tray in the tray search process.

The Tray Lock setting can be specified by selecting "No" for the "Apply Auto Paper Select" setting in the Paper Size Setting screen in the user tools.

(User Tools/ System Settings/ Paper Size Settings)

# • Note

• The by-pass feeder cannot be locked.

#### **Manual Tray Select**

If the selected tray does not have the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

# Auto Continue



If no paper tray matches the paper size and paper type specified by the driver:

When this function is enabled, the machine stops printing and cancels the print job if there is no paper tray which matches the paper size and paper type specified by the driver.

If Auto Continue is enabled, the machine waits for a specified period (0, 1, 5, 10, 15 minutes) for the correct size paper to be set in the tray, then cancels the print job if the interval expires.

• The interval can be set via Printer Settings in the user tools.

(User Tools/ Printer Settings/ System/ Auto Continue)

If Auto Continue is disabled, the machine will not print the job, but will not cancel it, so the job stays in the print queue.

# Note

• The default setting for Auto Continue is "Off."

# **Duplex Printing**

Duplex printing is available with all output bin options but not all paper sizes. If a job specifies duplex printing but the paper size to be used cannot be used by the duplex unit, the job will be printed single-sided.

• When the by-pass feeder is selected as the paper source, duplex printing is automatically disabled.

# Scanner Functions

### Image processing for scanner mode

The image processing for scanner mode is done in the IPU chip on the BICU board. The IPU chip chooses the most suitable image processing methods (gamma tables, dither patterns, etc) depending on the settings made in the driver.

The image compression method can be selected with SP mode (MR/MH/MMR for binary, gray scale or full color picture processing).

#### Image Data Path:

### 1. Image Store/Image Delivery Mode

The user can select the following modes from the LCD.

• Delivery only



After image processing and image compression, all image data for the job are stored in the printer controller RAM using TIFF, PDF or JPEG file format (binary, gray scale or full color picture processing). The type of file format used depends on the user's scanner settings.

When the delivery mode is selected, the controller creates a file which contains the destination and page information, and then the controller sends the file to a server.

#### 2. Twain Mode

After image processing and image compression, the data (binary, gray scale or full color picture of TIFF, PDF or JPEG) is sent to the scanner Twain driver directory on the computer.



# **General Specifications**

# Copier

Configuration:	Desktop		
Copy Process:	Laser beam scanning o	and electro photographi	c printing
Originals:	Sheet/Book/Object		
Original Size:	Maximum A4 / 8 <sup>1</sup> / <sub>2</sub> " x 14" A4 / 8 <sup>1</sup> / <sub>2</sub> " x 14" (AR	DF)	
Copy Paper Size:	Maximum A4 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 11" A4 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 14" A4 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 14" A4 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 14" Minimum A5 LEF / 8 <sup>1</sup> / <sub>2</sub> " x 51/ A6 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 51/ A6 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 51/ A4 SEF / 8 <sup>1</sup> / <sub>2</sub> " x 11" Custom sizes in the by Width: 90 – 216 mm Length: 139 – 600mm	SEF (Copier's paper tra SEF (Bypass) SEF (Optional paper tra SEF (Duplex) '2" LEF (Copier's paper t 2" (Bypass) SEF (Optional paper tra SEF (Duplex) pass tray: (3.5" – 8.5") 1 (5.48" – 23.62")	y) ay) ay unit)
Copy Paper Weight:	Standard paper tray; 6 60 – 90 g/m <sup>2</sup> , 16 – 2 Bypass: 60 – 157 g/m <sup>2</sup> , 16 – Duplex: 64 – 90 g/m <sup>2</sup> , 20 – 2	Standard paper tray; optional paper tray: 60 – 90 g/m <sup>2</sup> , 16 – 24 lb. Bypass: 60 – 157 g/m <sup>2</sup> , 16 – 42 lb. Duplex: 64 – 90 g/m <sup>2</sup> , 20 – 24 lb.	
Reproduction Ratios:		A4 Version	LT Version

	200%		155%	
	Lindigement	141%		129%
	Full Size	10	0%	100%
		93	3%	93%
	Reduction	7	1%	78%
		50	0%	65%
Zoom:	50% to 200%, in 1% s	teps		
Power Source:	110 – 120 V, 60 Hz o	or 220 – 24	0 V, 50/60	Hz
	Maximum: 900 W or l	ess (EU), 10	00 W or les	s (NA)
Power Consumption:	Energy Saver: 30 W of	r less		
rower Consumption.	Sleep Mode: 10 W or	less		
	Off Mode: 1 W or less			
	Sound Power Level			
Nutra Fratation	Standby		40 dB(A) or less	
Noise Emission:	Operating (copier only) 62 dB(A		62 dB(A) c	or less
	Operating (full-system) 66 dB(A) or less			
Dimensions (W x D x H)	Copier: 485 x 450 x 371 mm (19.4" x 18" x 14.8") With optional paper tray unit: 485 x 454 x 511 mm (18.4" x 17.7" x 20.1")			
Weight:	F/SPF: 30 kg (66 lb.) or less			
Resolution:	600 dpi			
Copying Speed in Multicopy Mode (copies/minute):	16 (A4 / 8 <sup>1</sup> / <sub>2</sub> " x 11"; 100%)			
Warm-up Time:	F/SPF: Approximately 30 seconds (at 20°C [68°F])			
	7.5 seconds or less			
	Note: Measurement conditions			
First Copy Time:	• From the ready state, with the polygonal mirror motor spinning.			
	A4/LT copying			
	From copier's paper tray			

	• 100% size
Copy Number Input:	Numeric keypad, 1 to 99 (increment, decrement)
Manual Image Density:	5 steps
Auto Off Timer	Default: 1 minute Range: 1 to 240 minutes
Energy Saver Timer:	Default: 1 minute Rage: 1 to 240 minutes
Copy Paper Capacity:	Paper Tray: 250 sheets Optional Paper Tray Unit: 500 sheets x 1 Bypass Tray: 100 sheets
Copy-Tray Capacity	250 sheets
Toner Replenishment:	Cartridge replacement (230 g/cartridge)
Toner Yield	7k copies /toner bottle (A4, 6% full black)
Optional Equipment:	Auto reverse document feeder Paper tray unit Anti-condensation heater for paper tray unit

# Printer

Resolution:	600 dpi (PCL 6/PCL5e/PS3/RPCS) 300 dpi (PCL5e/PS3) 200 dpi (RPCS)
Printing speed:	16 ppm (A4L, 8½" × 11"L plain paper)
Interface:	USB 2.0 interface, Ethernet interface (100BASE-TX/10BASE-T) Bi-directional IEEE1284 parallel x 1 (option) IEEE802.11b (Wireless LAN) (option) Bluetooth (option)
Network protocol:	TCP/IP, IPP
Printer language:	PCL6/PCL5e

	PostScript 3 (option)	
	RPCS (Refined Printing Command Stream) - an original Ricoh PDL)	
	PCL:	
	35 Intellifonts	
Desident Fenter	10 True Type fonts	
Kesident Fonts:	13 International fonts	
	PS3:	
	136 fonts (24 Type 2 fonts, 112 Type 14 fonts)	
Memory:	128 MB	
	Windows 98SE / Me	
Operating systems supported	Windows 2000	
by this machine:	Windows XP	
	Windows Server 2003	
Required network cable:	100BASE-TX/10BASE-T shielded twisted-pair (STP, Category/ Type5)	
	cable.	

# Scanner

Scan method	Flatbed scanning
a (*)	B/W: 20 pages/ min.
	[Scan Size: A4 SEF, compression, Resolution 200 dpi]
	ITU-T No.1 Chart
Scan speed	Full Color: 9 pages/ min.
	[Scan Size: A4 SEF, compression (level3), Resolution 200 dpi]
	ISO/JIS-SCID N5 Chart
Maximum power consumption	Less than 900 W
Image sensor type	CCD Image Sensor
Scan types	Sheet, book
Interface	Ethernet interface (10BASE-T or 100BASE-TX)

	IEEE1284
	IEEE 802.11b (Wireless LAN),
Resolution	B/W: 600 dpi Full color: 300 dpi - 600 dpi
Variable range of scan resolution	Setting range: 100 dpi - 600 dpi

\*<sup>1</sup> Scanning speeds vary according to machine operating conditions, computer (specifications, network traffic, software, etc.), and original types.

# ARDF

	Standard:
	A4 to A5; $8^{1}/_{2}$ " x 14" to $8^{1}/_{2}$ " x $5^{1}/_{2}$ "
	Custom (Simplex):
	Width: 139 mm to 216 mm
	Length: 139 mm to 1260 mm
Original Size:	Custom (Duplex):
	Width: 139 mm to 216 mm
	Length: 160 mm to 356 <sup>*1</sup> mm
	*1: When you use 310 mm or more originals, originals weighing
	55k (17 lb./ 64 g/m <sup>2</sup> ) or less cannot be used in duplex scanning
Original Weight:	52-105 g/m² (14-28 lb.)
Table Capacity:	50 sheets (80 g/m <sup>2</sup> , 21 lb.)
Original Standard Position:	Center
Separation:	FRR
Transport:	Roller transport
Feed Order:	Top first
Reproduction Range:	50-200%
Power Source:	24 and 5 Vdc from the copier

Power Consumption:	Operating: 50 W or less On standby: 1.2 W or less
Dimensions (W x D x H):	485 x 360 x 120 mm (19.1" x 14.2" x 4.72")
Weight:	4.9 kg (10.8 lb) (excluding the original table and platen cover)

# Paper Tray Unit

Paper Sizes:	A4 SEF, 8½" x 11" SEF, 8½" x 13" SEF, 8½" x 14" SEF
Paper Weight:	60 – 90 g/m², 16 – 24 lb.
Tray Capacity:	500 sheets (80 g/m <sup>2</sup> , 21 lb. ) x 1 tray
Paper Feed System:	Feed roller and friction pad
Power Source:	24 Vdc and 5 Vdc, from copier. If optional tray heater is installed, the copier also supplies Vac (120 Vac or 220 – 240 Vac).
Power Consumption:	Maximum: 15 W (excluding optional tray heater)
Average:	14 W (excluding optional tray heater)
Weight:	Not above 6 kg (13.2. lb.)
Size (W x D x H):	430 x 414 x 140 mm (16.9" x 16.3" x 5.5")

# **Supported Paper Sizes**

# **Original Paper Sizes**

The copier and ARDF do not detect original paper sizes. The following table lists the paper sizes that the ARDF can transport.

Duran	<b>C</b> :			ARDF	
raper	Size (VV X L)	BOOK	Simpl.	Dupl.	
A3 SEF	297 x 420 mm	_	-	_	
B4 SEF	257 x 364 mm	_	-	-	
A4 SEF	210 x 297 mm	Х	Х	Х	
A4 LEF	297 x 210 mm	_			
B5 SEF	182 x 257 mm	Х	Х	Х	
B5 LEF	257 x 182 mm	_			
A5 SEF	148 x 210 mm	Х	Х	Х	
A5 LEF	210 x 148 mm	Х	Х		
B6 SEF	128 x 182 mm	_			
B6 LEF	182 x 128 mm	_			
A6 SEF	105 x 148 mm	_			
8K SEF	267 x 390 mm	_			
16K SEF	195 x 267 mm	Х	Х	Х	
16K LEF	267 x 195 mm	_			
DLT SEF	11.0" x 17.0"	_			
LG SEF	8.5" x 14.0"	X*1	Х	X*2	
LT SEF	8.5" x 11.0"	Х	Х	Х	
LT LEF	11.0" x 8.5"	_			
Executive SEF	7.25" x 10.5"	-	Х	Х	

Dava en	S:	Deele	ARDF	
raper	Size (VV X L)	DOOK	Simpl.	Dupl.
HLT SEF	5.5" x 8.5"	Х	Х	Х
HLT LEF	8.5" x 5.5"	Х	Х	
F/GL (F4) SEF	8.0" x 13.0"	X*1	Х	X*2
Foolscap SEF	8.5" x 13.0"		Х	X*2
Folio SEF	8.25" x 13.0"		Х	X*2
Government	8.25" x 14"		Х	X*2
USB4 SEF	10.0" x 14.0"			
Eng Quarto SEF	Eng Quarto SEF 8.0" x 10.0"		Х	X*2
Eng Quarto LEF	Eng Quarto LEF 10.0" x 8.0"			
Custom:	Width 139-216 mm	_	X* <sup>3</sup>	x*2, 4
	Length 139-356 mm	_		

# Symbol meanings:

X: Can use

- -: Cannot use
- \* <sup>1</sup>: Can be used when the ARDF is installed
- $*2: 55k (17 lb./ 64 g/m^2)$  or less original cannot be used.
- \*<sup>3</sup>: Width: 139-216 mm, Length: 139-1260 mm
- \*<sup>4</sup>: Width 139-216 mm, Length: 160-356 mm

# Paper Feed

The copier and optional paper feed unit do not detect paper sizes. The following table lists the paper sizes that the copier and optional paper feed unit can transport.

Paper	Size (W x L)	Regular	By-pass	Duplex	Optional PFU
A3 SEF	297 x 420 mm	_	_	-	_
B4 SEF	257 x 364 mm	_	_	_	_

Paper	Size (W x L)	Regular	By-pass	Duplex	Optional PFU
A4 SEF	210 x 297 mm	Х	х	Х	Х
A4 LEF	297 x 210 mm	-	_	_	_
B5 SEF	182 x 257 mm	Х	Х	Х	_
B5 LEF	257 x 182 mm	-	_	_	_
A5 SEF	148 x 210 mm	-	Х	_	_
A5 LEF	210 x 148 mm	Х	Х	_	_
B6 SEF	128 x 182 mm	-	_	_	_
B6 LEF	182 x 128 mm	-	_	_	_
A6 SEF	105 x 148 mm	-	_	_	_
8K SEF	267 x 390 mm	_	_	_	-
16K SEF	195 x 267 mm	Х	Х	Х	_
16K LEF	267 x 195 mm	-	_	_	_
DLT SEF	11.0" x 17.0"	-	_	_	_
LG SEF	8.5" x 14.0"	-	Х	Х	Х
LT SEF	8.5" x 11.0"	Х	Х	Х	Х
LT LEF	11.0" x 8.5"	-	_	_	_
Executive SEF	7.25" x 10.5"	-	Х	_	_
HLT SEF	5.5" x 8.5"	-	Х	_	_
HLT LEF	8.5" x 5.5"	Х	Х	_	_
F/GL (F4) SEF	8.0" x 13.0"	_	Х	-	_
Foolscap SEF	8.5" x 13.0"	_	Х	Х	Х
Folio SEF	8.25" x 13.0"	_	Х	Х	Х
Government	8.25" x 14"	-	Х	Х	Х
USB4 SEF	10.0" x 14.0"	-	-	_	_
Eng Quarto SEF	8.0" x 10.0"	-	-	_	_

Paper	Size (W x L)	Regular	By-pass	Duplex	Optional PFU
Eng Quarto LEF	10.0" x 8.0"	-	-	-	_
Custom: Leading edge 90–216 mm			v		
Side edge 139–356 mm		_	^	_	_

# Symbol meanings:

X: Can transport

-: Cannot transport

# Machine Configuration

# Mainframe (B284/B288)



	Standard Component	Machine Code	Remarks
1	Copier [A]	B284/B288	-
2	GW Controller Board [C]	-	-
3	ARDF [D]	B872	-
4	Fax Unit [E]	-	-

	Optional Components	Machine Code	Remarks
5	500-Sheet Paper Feed Unit [B]	B421	-
6	Hand Set [F]	B433	-

# System Components



ltem	Machine Code		Remarks
Controller Box	-	[A]	Standard
Printer/Scanner unit	B892	[C]	Standard only for B288
RAM DIMM	G332	[E]	Distributed with the printer/scanner unit
PostScript 3	D323	[B]	-
IEEE 1284	B679	[D]	
Wireless LAN	G813	[D]	One from the three
Bluetooth	B826	[D]	

MEMO

MEMO